

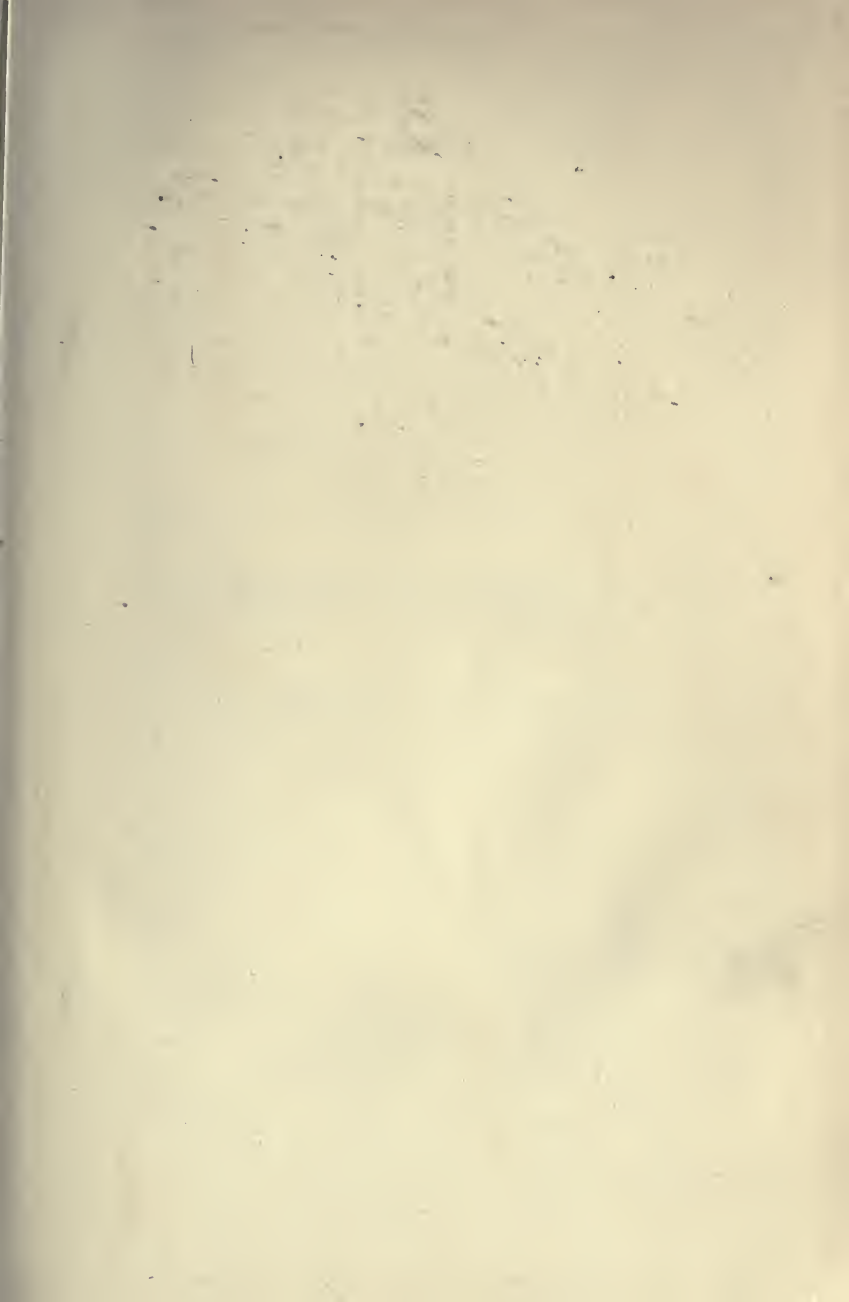
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## SEPTEMBER—1902.

1	M	Last day for Entry for Matriculation Exam.
2	Tu	
3	W	
4	Th	
5	F	
6	S	
7	S	
8	M	
9	Tu	
10	W	
11	Th	Meeting of the Faculty of Arts.
12	F	
13	S	
14	S	
15	M	Matriculation Examination commences.
16	Tu	Meeting of the Faculty of Science.
17	W	
18	Th	
19	F	
20	S	
21	S	
22	M	
23	Tu	
24	W	
25	Th	
26	F	
27	S	
28	S	
29	M	<i>MICHAELMAS DAY.</i>
30	Tu	Meeting of the Senate.

## OCTOBER—1902.

1	W	OPENING OF UNIVERSITY SESSION. Meeting of the Council.
2	Th	
3	F	Last day for applications for the Sydenham Scholarships, and Entrance Scholarship for Dental Students.
4	S	
5	S	
6	M	
7	Tu	
8	W	
9	Th	Meeting of the Faculty of Science.
10	F	
11	S	
12	S	
13	M	
14	Tu	
15	W	
16	Th	Meeting of the Faculty of Arts.
17	F	
18	S	
19	S	
20	M	
21	Tu	
22	W	
23	Th	Meeting of the Senate.
24	F	
25	S	
26	S	
27	M	
28	Tu	
29	W	
30	Th	
31	F	

## NOVEMBER—1902.

1	S	
2	S	
3	M	
4	Tu	
5	W	Meeting of the Council.
6	Th	Meeting of the Faculty of Science.
7	F	
8	S	
9	S	King Edward VII. born 1841.
10	M	
11	Tu	
12	W	
13	Th	Meeting of the Faculty of Arts.
14	F	
15	S	
16	S	
17	M	
18	Tu	
19	W	
20	Th	Meeting of the Senate.
21	F	
22	S	
23	S	
24	M	
25	Tu	
26	W	
27	Th	
28	F	
29	S	
30	S	



## DECEMBER—1902.

1	M	
2	Tu	
3	W	Meeting of the Council.
4	Th	Meeting of the Faculty of Science.
5	F	
6	S	
7	<i>S</i>	
8	M	
9	Tu	
10	W	
11	Th	Meeting of the Faculty of Arts.
12	F	
13	S	
14	<i>S</i>	
15	M	
16	Tu	
17	W	
18	Th	Meeting of the Senate.
19	F	
20	S	WINTER TERM ENDS.
21	<i>S</i>	
22	M	
23	Tu	
24	W	
25	Th	<i>CHRISTMAS DAY.</i>
26	F	Bank Holiday.
27	S	
28	<i>S</i>	
29	M	
30	Tu	
31	W	

## JANUARY—1903.

1	Th	
2	F	
3	S	
4	S	
5	M	Last day for entry for D.P.H. and B.Sc. in Public Health Exams.
6	Tu	
7	W	Meeting of the Council.
8	Th	
9	F	
10	S	
11	S	
12	M	
13	Tu	<b>SPRING TERM COMMENCES.</b>
14	W	[Meeting of the Faculty of Science.
15	Th	Meeting of the Faculty of Arts.
16	F	
17	S	
18	S	
19	M	D.P.H. and B.Sc. in Public Health Examinations commence.
20	Tu	
21	W	
22	Th	Meeting of the Senate. Queen Victoria died, 1901.
23	F	
24	S	
25	S	
26	M	
27	Tu	
28	W	
29	Th	
30	F	
31	S	

## FEBRUARY—1903.

1	S	
2	M	
3	Tu	
4	W	Meeting of the Council.
5	Th	
6	F	
7	S	
8	S	
9	M	
10	Tu	
11	W	
12	Th	Meeting of the Faculty of Science
13	F	
14	S	
15	S	
16	M	
17	Tu	
18	W	
19	Th	Meeting of the Senate.
20	F	
21	S	
22	S	
23	M	Sir Josiah Mason born, 1795.
24	Tu	
25	W	<i>ASH WEDNESDAY.</i>
26	Th	
27	F	
28	S	

## MARCH—1903.

1	S	
2	M	
3	Tu	
4	W	Meeting of the Council.
5	Th	Meeting of the Faculty of Science.
6	F	
7	S	
8	S	
9	M	
10	Tu	
11	W	
12	Th	Meeting of the Faculty of Arts.
13	F	
14	S	
15	S	
16	M	
17	Tu	
18	W	
19	Th	Meeting of the Senate.
20	F	
21	S	
22	S	
23	M	
24	Tu	Royal Charter of University of Birmingham granted, 1900.
25	W	{ LADY DAY. Last day for applications for Science Research Scholarships, awarded by the Royal Commissioners of the 1851 Exhibition.
26	Th	
27	F	
28	S	SPRING TERM ENDS. Medical Winter Session ends.
29	S	
30	M	
31	Tu	

## APRIL—1903.

1	W	Meeting of the Council.
2	Th	
3	F	
4	S	
5	S	
6	M	Last day for entry for 1st and 2nd Medical Exams.
7	Tu	
8	W	
9	Th	
10	F	<i>GOOD FRIDAY.</i>
11	S	
12	S	<i>EASTER DAY.</i>
13	M	<i>EASTER MONDAY.</i> Bank Holiday.
14	Tu	
15	W	
16	Th	
17	F	
18	S	
19	S	
20	M	1st and 2nd Med. Exams. commence.
21	Tu	<b>SUMMER TERM COMMENCES.</b> Medical Summer Session commences. Meetings of the Faculties of Science and Arts.
22	W	
23	Th	Meeting of the Senate.
24	F	
25	S	
26	S	
27	M	
28	Tu	
29	W	
30	Th	Last day for applications for Heslop Memorial Medal and Constance Naden Medal.



## MAY—1903.

1	F	Last day for applications from Associates of M.U.C. for B.A., B.Sc., or M.B. Last day for entry for all University Examinations.
2	S	
3	<i>S</i>	
4	M	
5	Tu	
6	W	Meeting of the Council.
7	Th	Meeting of the Faculty of Science.
8	F	
9	S	
10	<i>S</i>	
11	M	Last day for entry for Matriculation Examination.
12	Tu	
13	W	
14	Th	Meeting of the Faculty of Arts.
15	F	
16	S	
17	<i>S</i>	
18	M	
19	Tu	
20	W	
21	Th	Meeting of the Senate.
22	F	
23	S	
24	<i>S</i>	
25	M	
26	Tu	
27	W	
28	Th	
29	F	
30	S	
31	<i>S</i>	WHITSUN DAY.

## JUNE—1903.

1	M	Bank Holiday.
2	Tu	Matriculation Examination commences. Last day for application for Bowen and Priestley Scholarships. Last day for applications for Bunce Prize and Gladstone Memorial Prize. Meeting of the Council.
3	W	
4	Th	
5	F	
6	S	
7	S	
8	M	B.A., B.Sc., and 2nd Engineering Exams. commence.
9	Tu	
10	W	
11	Th	Meeting of the Faculty of Science.
12	F	3rd Medical Examination.
13	S	
14	S	
15	M	Inter-Sci.; 1st Engineering; Inter-Arts; M.A.; 1st and 4th Med.; M.B., Ch.B.; B.D.S.; M.D., Ch.M. Examinations commence.
16	Tu	
17	W	
18	Th	Meeting of the Faculty of Arts.
19	F	
20	S	
21	S	
22	M	D.P.H. and B.Sc. in Public Health, and 2nd Medical Examinations commence.
23	Tu	
24	W	<i>MIDSUMMER DAY.</i>
25	Th	Meeting of the Senate.
26	F	
27	S	<b>SUMMER TERM ENDS.</b> Medical Summer Session ends.
28	S	
29	M	
30	Tu	

## JULY—1903.

1	W	Meeting of the Council.
2	Th	
3	F	
4	S	
5	S	
6	M	
7	Tu	
8	W	
9	Th	
10	F	
11	S	
12	S	
13	M	
14	Tu	
15	W	
16	Th	
17	F	
18	S	
19	S	
20	M	
21	Tu	
22	W	
23	Th	
24	F	
25	S	
26	S	
27	M	
28	Tu	
29	W	
30	Th	
31	F	

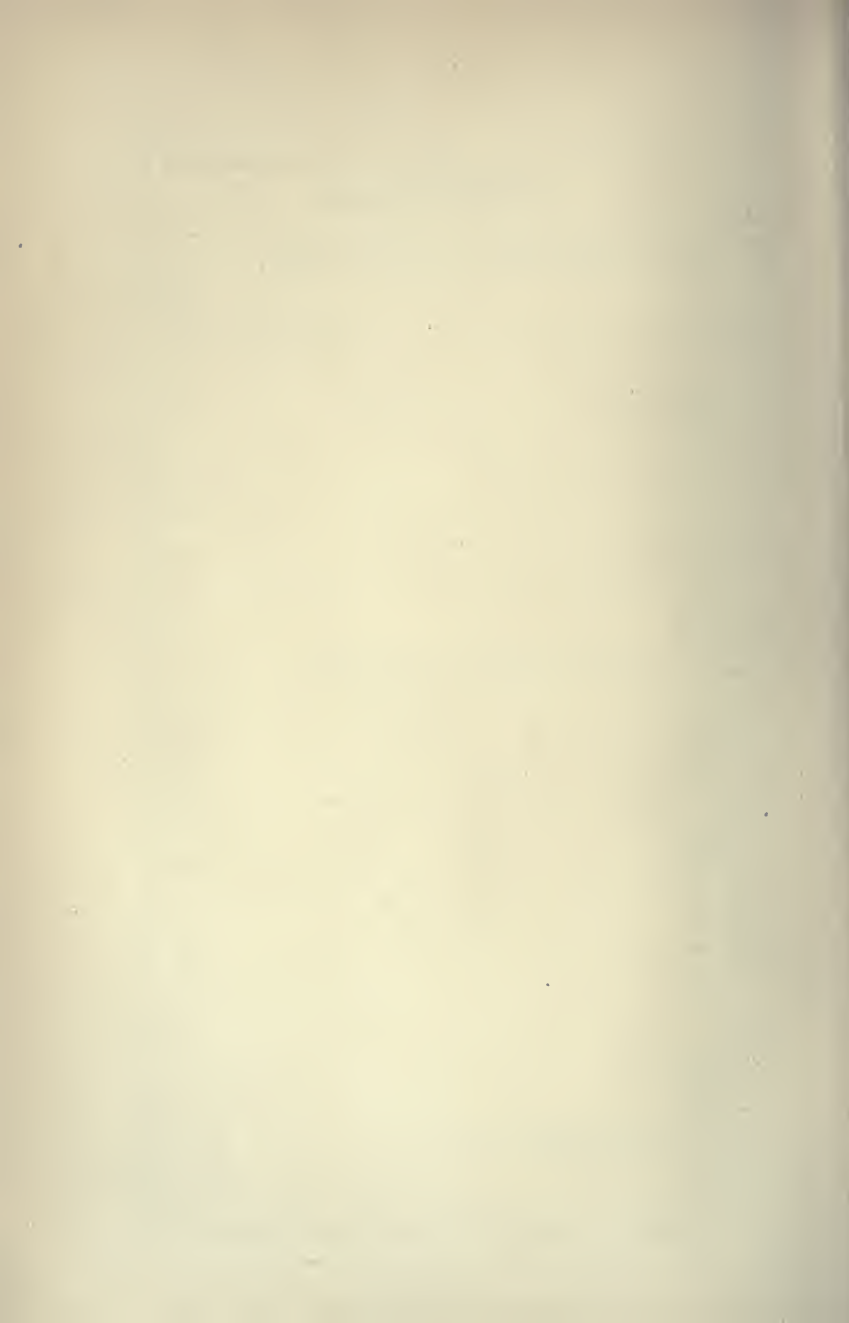
## AUGUST—1903.

1	S	
2	S	
3	M	Bank Holiday.
4	Tu	
5	W	
6	Th	
7	F	
8	S	
9	S	
10	M	
11	Tu	
12	W	
13	Th	
14	F	
15	S	
16	S	
17	M	
18	Tu	
19	W	
20	Th	
21	F	
22	S	
23	S	
24	M	
25	Tu	
26	W	
27	Th	
28	F	
29	S	
30	S	
31	M	

# SEPTEMBER—1903.

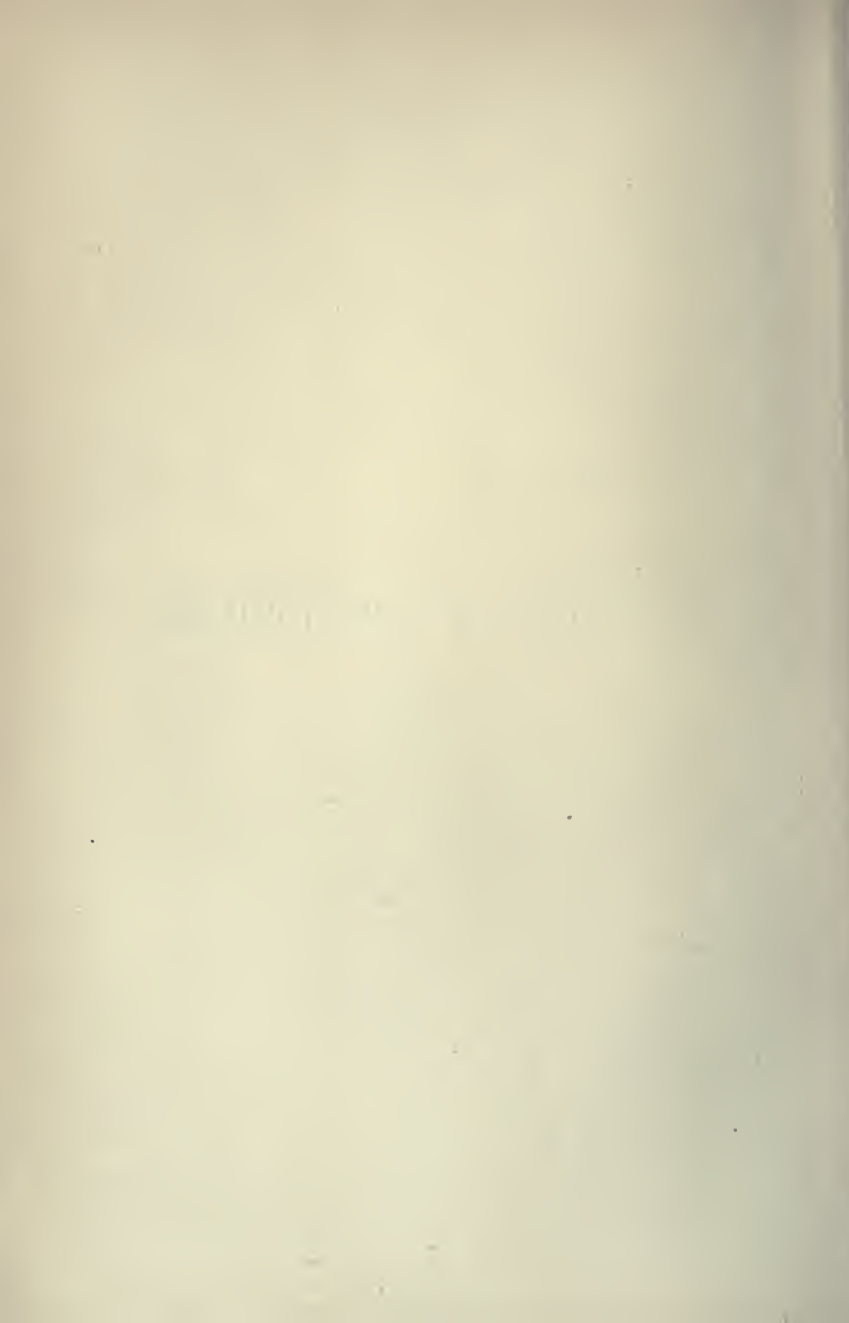
1	Tu	Last day for Entry for Matriculation Exam.
2	W	
3	Th	
4	F	
5	S	
6	§	
7	M	
8	Tu	
9	W	
10	Th	
11	F	
12	S	
13	§	
14	M	Matriculation Examination commences.
15	Tu	
16	W	
17	Th	
18	F	
19	S	
20	§	
21	M	
22	Tu	
23	W	
24	Th	
25	F	
26	S	
27	§	
28	M	
29	Tu	<i>MICHAELMAS DAY.</i>
30	W	





UNIVERSITY OF BIRMINGHAM.

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# University of Birmingham.

## CHARTER.

**Victoria, by the Grace of God,** of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith.

**To all to whom** these presents shall come, greeting :

**Whereas** Petitions have been presented to us by the Mason University College of Birmingham by the Mayor Aldermen and Citizens of the City of Birmingham in the County of Warwick by the School Board for the said City by the Governors of the Grammar School of King Edward VI. in the said City and by others praying Us to erect within the said City for the promotion of Arts Sciences and Learning a University and to grant a Charter with such appropriate provisions therein in that behalf as shall seem to Us meet and fit.

And whereas we have taken the said Petitions into Our Royal consideration and are minded to accede thereto.

Now therefore Know Ye that We by Virtue of Our Royal Prerogative in that behalf and all other powers enabling Us so to do of Our special grace certain knowledge and mere motion by these Presents do for Us Our Heirs and Successors grant will direct and ordain as follows :—

1.—There shall be from henceforth for ever in Our said City of Birmingham a University by the name and style of “The University of Birmingham” with Faculties of Science Arts Medicine and Commerce and such other Faculties as the Statutes of the University may from time to time prescribe.

2.—Our trusty and well-beloved Councillor Joseph Chamberlain the persons named in the Schedule hereto as members of the Court of Governors and of the Council and the Members for the time being of the Court of Governors the Council and the Senate of the University the Chancellor the Pro-Chancellor the Vice-Chancellor the Pro-Vice-Chancellor and the Principal

and Vice-Principal of the University for the time being and all others who shall pursuant to this Our Charter and the Statutes of the University for the time being be Members of the University are hereby created and from henceforth for ever shall be one body politic and corporate with perpetual succession and a Common Seal by the name and style of "The University of Birmingham" with full power and capacity by and in such name to sue and be sued and to take and hold land and to do all other lawful acts whatsoever and with full right authority power and capacity without any further or other licence by virtue of this Our Charter to take and hold such lands tenements and hereditaments as may be for the time being occupied by or on behalf of the said Corporation for the transaction of its business and the actual carrying out of its purposes and also in addition other lands tenements and hereditaments to the annual value of £50,000 according to the annual value thereof at the respective times when the same shall be respectively taken.

3.—We Our Heirs and Successors Kings and Queens of the Kingdom aforesaid shall be and remain the Visitor and Visitors of the University of Birmingham through the Lord President of Our Council for the time being.

4.—There shall be a Chancellor of the said University and one Pro-Chancellor who subject to the Statutes of the University shall act for the Chancellor pending a vacancy in that office or during the absence or inability of the Chancellor.

The first Chancellor shall be Our said trusty and well-beloved Councillor Joseph Chamberlain.

The Vice-Chancellor for the time being shall be Pro-Chancellor.

5.—There shall be a Vice-Chancellor of the said University and one Pro-Vice-Chancellor who subject to the Statutes of the University shall act for the Vice-Chancellor pending a vacancy in that Office or during the absence or inability of the Vice-Chancellor.



6.—There shall be a Principal of the University and one Vice-Principal who subject to the Statutes of the University shall act for the Principal pending a vacancy in that office or during the absence or inability of the Principal.

There shall also be a Dean of each of the Faculties within the University. The Dean of the Faculty of Medicine shall be appointed by the Council from among the Members of that Faculty. The Deans of the other Faculties shall be appointed as provided by the Statute of the University.

The Principal shall be from time to time appointed by Us Our Heirs and Successors through the Lord President of Our Council for the time being.

The first Vice-Principal shall be Robert Samuel Heath, M.A., D.Sc., now Principal of Mason University College.

The first Dean of the Faculty of Medicine shall be Bertram Coghill Alan Windle, M.A., M.D., D.Sc., F.R.S.

7.—The Supreme Governing Body of the University shall be the Court of Governors and subject to this Charter the Statutes of the University and the Law of the Realm the Court of Governors shall have absolute power within the University.

The first Members of the Court of Governors shall be the persons nominated in the First Schedule to these presents.

Statutes of the University shall regulate the powers and business of the Court the election and continuance in office of the Members of the Court (including the continuance in office of the first Members) the filling of vacancies among the Members and all other matters relative to the Court which it may be thought are proper to be so regulated. Women shall be eligible to be Members of the Court of Governors.

The Chancellor shall be ex-officio head of the University and a Member and President of the Court of Governors.

The Pro-Chancellor shall be ex-officio a member of the Court of Governors.

8.—There shall be a Council of the University which shall subject to the Statutes of the University and the control of the Court of Governors as regulated by the said Statutes have the government and control of the finances of the University and of the discipline practical affairs business and work of the University.

The Vice-Chancellor shall be ex-officio a member and President of the Council.

The Pro-Vice-Chancellor shall be ex-officio a member of the Council.

The Principal Vice-Principal and the Deans of the Faculties shall be ex-officio members of the Council.

There shall also be one Member of the Council who shall be elected by the Faculty of Medicine of the University.

At no time shall the Members of the Council who are members of the Senate be more in number than the number of Members of the Council divided by four.

The first Members of the Council shall be the persons nominated in the First Schedule to these presents.

Statutes of the University shall regulate the performance of the duties of the Council the election and continuance in office of the Members of the Council (including the continuance in office of the first Members) the filling of vacancies among the Members and all other matters relative to the Council which it may be thought are proper to be so regulated.

9.—There shall be a Senate of the University consisting of the Principal Vice-Principal Deans of Faculties and all the Professors of the University which shall subject to Statutes of the University and the control and approval of the Council have the regulation and control of the Curriculum and Education afforded by the University and the Discipline of the Students of the University.

The Principal shall be Ex-officio President of the Senate.

Statutes of the University shall regulate and define the powers and business of the Senate and all other matters relative to the Senate which it may be thought are proper to be so regulated.

10.—The University shall be both a Teaching and an Examining University and shall further the prosecution of original research in all its branches.

The University may confer on persons of either sex Degrees Diplomas and Certificates whether Honorary Substantive or otherwise and such Degrees Diplomas and Certificates shall be conferred and held subject to any such provisions as may be made by the Statutes and Ordinances of the University with reference thereto.

No religious test of any kind whatsoever shall be applied in the University or imposed upon or observed by any Member Graduate Student or Office Holder of the University.

11.—The University may admit to affiliation with it or to any of its privileges any College or Institution or the Members or Students thereof upon such terms and conditions and subject to such regulations as may from time to time be prescribed by the Statutes of the University.

12.—The Court of Governors may from time to time make Statutes for the University which shall carry into effect this Charter and its provisions and may regulate and govern and contain prescriptions in regard to the affairs business work and interests of the University and those of the Corporate Members thereof as such and the status appointment and removal of the Members Chancellor Pro-Chancellor Vice-Chancellor Pro-Vice-Chancellor Principal Vice-Principal and Dean of the Faculty of Medicine and Officers thereof and may contain all such provisions as the Court may deem it fit and meet should be made with respect to or for the governing of the University its Constituent parts and Members or to promote the objects of these presents.

The Council shall have such power to suggest draft or propose to the Court Statutes to be made by the Court as the Statutes of the University may provide for and it shall be the duty of the Court to duly consider the same.

The first Statutes of the University shall be those Scheduled to these presents and they are hereby declared to be valid and within the powers by this Article of these presents conferred.

The Statutes may add to amend alter or repeal the Statutes from time to time in force (including the first) and the power to make Statutes shall not be limited by or with reference to the first or any subsequent Statutes or the several subject matters therein dealt with.

Any Statutes to be hereafter made which are not repugnant to the provisions of this Charter or the Laws of the Realm shall be operative and have effect when allowed by Us or by any Committee of Our Most Honourable Privy Council and not before. Such allowance shall be conclusive evidence of the Statutes so allowed being authorized by the provisions of this Charter.

13.—The Court of Governors the Council and the Senate respectively may from time to time make regulations for Governing subject to these presents and the Statutes of the University the proceedings of those bodies respectively. The power to make regulations shall include the power to add to amend alter or repeal any theretofore made.

The Council shall make the first regulations for the Court of Governors and the Council. The regulations for the Court of Governors require the approval of the said Court.

14.—It shall be the duty of the Council from time to time to bring before the Court of Governors and the Senate any matters which in its opinion should be dealt with by these bodies respectively.

15.—There shall be a Guild of Graduates of the University and a Guild of its Students each of whom

shall have such and so many Representatives on the Court of Governors as may be provided by the Statutes of the University. The constitution functions privileges and all other matters connected with the said Guilds requiring to be prescribed shall be prescribed as may be provided by the Statutes.

16.—The Court of Governors may at any time alter amend or add to these presents and their provisions by a Special Resolution in that behalf and such alteration amendment or addition shall when allowed by Us Our Heirs or Successors under the sign manual or otherwise as We or They shall deem meet become effectual so that these presents shall thenceforward continue and operate as though they had been originally granted and made as so altered amended or added to as aforesaid. This Article of these presents shall apply to this Charter as altered amended or added to in manner aforesaid. A Special Resolution means a Resolution passed and confirmed in the manner provided by the Statutes of the University.

17.—Our Royal Will and Pleasure is that these presents shall ever be construed benevolently and in every case most favourably to the University of Birmingham and the promotion of the objects of this Our Charter.

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## FIRST SCHEDULE.

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### MEMBERS OF THE COURT OF GOVERNORS.

The following persons shall be the first members of the said Court :—

#### Class (I.) LIFE GOVERNORS.

The Most Honourable the Marquess of Hertford, the Right Honourable the Earl of Dudley, the Right Honourable the Earl of Harrowby, the Right Honourable the Earl of Warwick, the Right Honourable the Earl of Bradford, the Right Honourable the Earl of Dartmouth, the Right Honourable the Earl of Denbigh, the Right



Honourable the Viscount Cobham, the Right Rev. John Percival (Lord Bishop of Hereford), the Right Honourable Lord Burton, the Right Honourable Lord Calthorpe, the Right Honourable Lord Leigh, the Right Honourable Lord Norton, the Right Honourable Lord Windsor, the Right Honourable Lord Wrottesley, the Right Honourable Joseph Chamberlain, the Right Honourable Sir Henry Hartley Fowler, the Right Honourable William Kenrick, Sir Henry Wiggin, Baronet, Sir John Jaffray, Baronet, Sir Benjamin Hingley, Baronet, Sir John Charles Holder, Baronet, Sir Balthazar Walter Foster, Sir Alfred Hickman, Sir John Benjamin Stone, Sir Richard Tangye, Sir Willoughby Francis Wade, James Gibbs Blake, George James Johnson, Francis Corder Clayton, George Hamilton Kenrick, Robert Francis Martineau, Edward Lawley Parker, Osmund Airy, William Ansell, Edward Ansell, William Beilby Avery, Arthur Albright, George Stacey Albright, William Arthur Albright, William Elijah Benton, Charles Gabriel Beale, Alice Beale, George Edward Belliss, Thomas Barnsley, Francis Seddon Bolton, James Booth, George Cadbury, Elsie Mary Cadbury, Helen Caddick, Andrew Carnegie, Arthur Chamberlain, Joseph Austen Chamberlain, Alexander Macomb Chance, John Homer Chance, Joseph Bennett Clarke, Gilbert Henry Claughton, William Barwick Cregoe-Colmore, William Thomas Gustavus Cook, John Corbett, Frederick Corbett, Harriet Elizabeth Gertrude Dale, Arthur Stansfeld Dixon, Charles Woolryche Dixon, James Ernest Dixon, Frederick Elkington, Thomas Stratton Fallows, John Feeney, Walter Newton Fisher, William Gibbins, Caroline Gibbins, Thomas Gladstone, Arthur Godlee, William Henry Greenwood, Felix Hadley, Charles Harding, Edith Harrold, Obed Charles Hawkes, Alfred Bradley Holinsworth, Charles Bradley Holinsworth, James Richardson Holliday, John Bernard Hardman, William Harris, Robert Heath, George Hookham, Laurence William Hodson, Walter Loveridge Hodgkinson, Charles Holcroft, William Holcroft, Thomas Vincent Jackson, Frank James, Joseph James, George Hope Johnstone, William Jones, John Arthur Kenrick, Mary Kenrick,

Arthur Keen, Rachel Anna King, Ethel Mary Knox, Thomas Grosvenor Lee, Henry Lea, George Braithwaite Lloyd, John Henry Lloyd, John Pearce Lacy, John Walford Lea, Edward Bindon Marten, Frank McClean, Alfred Morcom, Henry Mitchell, John Manley, Charles Edward Mathews, John Throgmorton Middlemore, George Henry Morley, Edward Nettlefold, Abraham Follett Osler, Alfred Clarkson Osler, Henry Follett Osler, Thomas Parker, Ebenezer Parkes, Charles Andrew Palmer, Richard Peyton, John Phillips, Richard Alfred Pinsent, Hume Chancellor Pinsent, Maurice Pollack, Alfred Henry Poultney, Edwin Rickards, Charles Showell, Howard Samuel Smith, Martyn Josiah Smith, Edward James Smith, William Charles Alston Smith-Ryland, Alexander William Still, Lilian Landon Thomas, Thomas William Thursfield, William Augustus Tilden, George Tangye, Michael Tomkinson, Thomas Turner, Isabel Mary Vardy, John Clough Vaudrey, Thomas Ferdinand Walker, John William Bund Willis-Bund, John Edward Wilson, Joseph Henry Wilkinson, Georgina Tarleton Young, Hugo Joseph Young.

Class (2) Five persons appointed by the Municipal Council of the City of Birmingham.

Sir JAMES SMITH.

MAURICE POLLACK.

WILLIAM THOMAS GUSTAVUS COOK.

JOHN HENRY LLOYD.

ALFRED JOHN REYNOLDS.

Class (3) One member for each of the County Councils of Warwickshire Worcestershire Staffordshire Shropshire Leicestershire Derbyshire Rutlandshire to be appointed by the respective County Councils and one member for the Council of every County Borough (other than the City of Birmingham) in the said Counties and for the Council of the Borough of Kidderminster to be appointed by the respective Councils and one member for the School Board of every School Board for a County Borough (other than Birmingham) in the said Counties.

			<i>Appointed by</i>
The Rev. WILLIAM MACGREGOR...			The County Council of Warwickshire.
GEORGE WILLIAM GROSVENOR	...		The County Council of Worcestershire.
FRANCIS ELLIOTT KITCHENER	...		The County Council of Staffordshire.
JAMES PATCHETT	...	...	The County Council of Shropshire.
BENJAMIN HURST	...	...	The County Council of Leicestershire.
GEORGE HERBERT STRUTT	...		The County Council of Derbyshire.
The Right Hon. the Earl of GAINSBOROUGH	...	...	The County Council of Rutlandshire.
ALBERT SAMUEL TOMSON	...		The Council of the City of Coventry.
ALBERT BUCK	...	...	The Council of the City of Worcester.
CHARLES HAYNES	...	...	The Council of the Borough of Dudley.
EDWARD THOMAS HOLDEN	...		The Council of the Borough of Walsall.
CHARLES AKRILL	...	...	The Council of the Borough of West Bromwich.
THOMAS HAMPTON	...	...	The Council of the Borough of Hanley.
SAMUEL THEODORE MANDER	...		The Council of the Borough of Wolverhampton.
EDWARD WOOD	...	...	The Council of the Borough of Leicester.
JOHN EYRE RUSSELL	...	...	The Council of the Borough of Derby.
EDWARD PARRY	...	...	The Council of the Borough of Kidderminster.
FREDERICK BIRD	...	...	The School Board of the City of Coventry.
ALBERT WEBB	...	...	The School Board of the City of Worcester.
GEORGE HENRY DUNN	...	...	The School Board of the Borough of Dudley.
The Rev. GEORGE BARRANS	...		The School Board of the Borough of Walsall.

			<i>Appointed by</i>
The Rev. JOHN WATKISS JONES ...			The School Board of the Borough of West Bromwich.
THOMAS WILLIAM HARRISON ...			The School Board of the Borough of Hanley.
ALEXANDER HUNTER ...	...	...	The School Board of the Borough of Wolverhampton.
ALEXANDER BAINES ...	...	...	The School Board of the Borough of Leicester.
WILLIAM BEMROSE ...	...	...	The School Board of the Borough of Derby.

Class (4) One person appointed by the Birmingham School Board.

The Rev. JOSEPH WOOD.

Class (5) One person appointed by the Lord President of Her Majesty's Privy Council.

WILLIAM AUGUSTUS TILDEN.

One each by the Chancellors for the time being of the Universities of Oxford Cambridge London Wales the Victoria University and the University of Birmingham.

			<i>Appointed by</i>
EDWARD BAGNALL POULTON ...			The Chancellor of the University of Oxford.
WILLIAM NAPIER SHAW ...			The Chancellor of the University of Cambridge.
JOSEPH LARMOR... ...	...	...	The Chancellor of the University of London.
The Right Hon. Lord RENDEL...			The Chancellor of the University of Wales.
NATHAN BODINGTON ...	...	...	The Chancellor of the Victoria University.
(To be appointed)... ...	...	...	The Chancellor of the University of Birmingham.

One by the Warden of Durham University.

FRANK BYRON JEVONS.

One by the Royal College of Physicians of London.

CHARLES THEODORE WILLIAMS.

One by the Council of the Royal College of Surgeons of England.

Sir WILLIAM MACCORMAC, Baronet.

Class (6) Ten of the Members of Parliament elected for the Boroughs Counties and Divisions of Counties or Boroughs in the said seven Counties.

The Right Hon. JESSE COLLINGS, M.P.

VICTOR MILWARD, M.P.

RICHARD BIDDULPH MARTIN, M.P.

JOHN WILLIAM WILSON, M.P.

WILLIAM WOODALL, M.P.

Sir HENRY HOWE BEMROSE, M.P.

VICTOR C. W. CAVENDISH, M.P.

ALEXANDER HARGREAVES BROWN, M.P.

Lord EDWARD MANNERS, M.P.

ALFRED BALDWIN, M.P.

Class (7) Governors ex-officio.

The Lord Mayor of Birmingham (CHARLES GABRIEL BEALE).

The Right Rev. JOHN JAMES STEWART PEROWNE, D.D.,  
Lord Bishop of Worcester.

The Right Rev. The Hon. AUGUSTUS LEGGE, D.D.,  
Lord Bishop of Lichfield.

The Right Rev. EDWARD ARBUTHNOT KNOX, D.D.,  
Suffragan-Bishop of Coventry.

The Right Rev. EDWARD ILSLEY, D.D., Roman  
Catholic Bishop of Birmingham.

The Chairman of the Guardians of the Poor of the Parish of Birmingham.

STEPHEN GATELEY.

The Chairman of the Birmingham School Board.

The Rev. EGERTON FRANCIS MEAD MACCARTHY.

The Bailiff of the Governors of the Foundation of King Edward VI. Birmingham.

ROBERT SAMUEL HEATH.

The Senior Vice-President of the Birmingham and Midland Institute.

HUME CHANCELLOR PINSENT.

The Head Master of the High School on the Foundation of King Edward VI. Birmingham.

The Rev. ALBERT RICHARD VARDY.



The Head Masters of Rugby Repton Shrewsbury  
Uppingham and Malvern.

The Rev. HERBERT ARMITAGE JAMES ... Rugby.  
The Rev. WILLIAM MORDAUNT FURNEAUX Repton.  
The Rev. H. WHITEHEAD MOSS ... Shrewsbury.  
The Rev. EDWARD CARUS SELWYN ... Uppingham.  
The Rev. SYDNEY RHODES JAMES ... Malvern.

The Head Masters of the Grammar Schools on the  
Foundation of King Edward VI. Birmingham.

The Rev. EGERTON FRANCIS MEAD MACCARTHY.  
The Rev. ARTHUR JAMSON SMITH.  
ERNEST WILLIAM FLOYD.

The Head Mistress of the High School for Girls on  
the Foundation of King Edward VI. Birmingham.

EDITH ELIZABETH MARIE CREAK.

The Head Master of the Birmingham Municipal  
School of Art.

EDWARD RICHARD TAYLOR.

The Principal of the Birmingham Municipal  
Technical School.

WILLIAM EDWARD SUMPNER.

The President of the Birmingham and Midland  
Counties Branch of the British Medical Association.

BENNETT MAY.

The President of the Central Counties Branch of  
the British Dental Association.

JOHN THOMAS CRAIG.

The President of the Birmingham Clinical Board.

THOMAS FREDERICK CHAVASSE.

The President of the Birmingham Law Society.

JOSEPH ANSELL.

The Chairman of the Committee of the General  
Hospital Birmingham.

JOSEPH HICKMAN PEARSON.

The Chairman of the Committee of the Queen's  
Hospital Birmingham.

HENRY GLAISYER.

The Vice-Principal.

ROBERT SAMUEL HEATH.

The Dean of the Medical Faculty.

BERTRAM COGHILL ALAN WINDLE.

Class (15) One member appointed by each of the following eleven Associations of Voluntary Elementary Schools viz. :—

*Church of England Associations.*

*Diocese of Worcester (comprising the Counties of Worcester and Warwick).*

- (a) The Church Schools Association for the Diocese of Worcester.

The Right Rev. JOHN JAMES STEWART PEROWNE, D.D.,  
Lord Bishop of Worcester.

- (b) The Church Schools Sub-Association for the Archdeaconry of Worcester.

The Ven. WILLIAM WALTERS, Archdeacon of Worcester.

- (c) The Church Schools Sub-Association for the Archdeaconry of Coventry.

The Ven. WILLIAM BREE, D.D., Archdeacon of  
Coventry.

- (d) The Church Schools Sub-Associations for the Archdeaconry of Birmingham.

The Right Rev. EDMUND ARBUTHNOT KNOX, D.D.,  
Bishop-Suffragan of Coventry.

*Diocese of Lichfield.*

The Church Schools Associations for the Diocese of Lichfield as under :

- (e) The Staffordshire Voluntary Schools Association and its two divisions.

The Right Rev. the Hon. AUGUSTUS LEGGE, D.D., Lord  
Bishop of Lichfield.

- (f) The North Staffordshire Sub-Association.

The Rev. CHARLES HARE SIMPKINSON.

- (g) The South Staffordshire Sub-Association.

ISAAC EDWARD EVERETT.

- (h) The North Salop Voluntary Schools Association.

The Rev. THOMAS AUDEN.

*Roman Catholic Association.*

- (i) Birmingham Diocesan Catholic Schools Association. (Comprising the Counties of Worcester Warwick Stafford and Oxford.)

JAMES JOHN PARFITT.

- (j) Midland Association of Wesleyan Day Schools. (Comprising the Counties of Leicester Stafford Warwick Worcester and parts of Cheshire Derby Lincoln (Kesteven) Notts Salop and York (W.R.).

WILLIAM PARKIN.

- (k) The Midland Counties Association of British and other Voluntary Schools. (Comprising the Counties of Derby Leicester Notts Salop Warwick and parts of Staffordshire and Worcestershire.)

ALFRED WILLIAM WORTHINGTON.

## MEMBERS OF THE COUNCIL.

The following persons shall be the first members of the said Council :—

## Class (1)—

The Rt. Hon. JOSEPH CHAMBERLAIN...Chancellor.

(To be elected)

{ Vice-Chancellor.  
Pro-Vice-Chancellor.  
Treasurer.  
Principal.

ROBERT SAMUEL HEATH ... Vice-Principal.

BERTRAM COGHILL ALAN WINDLE ...Dean of the Faculty  
of Medicine.

## Class (2)—

The Right Hon. LORD WINDSOR.

Sir JOHN CHARLES HOLDER, Baronet.

JAMES GIBBS BLAKE.

FRANCIS CORDER CLAYTON.

GEORGE WILLIAM GROSVENOR.

GEORGE JAMES JOHNSON.

GEORGE HAMILTON KENRICK.

FRANCIS ELLIOTT KITCHENER.

The Rev. WILLIAM MACGREGOR.

SAMUEL THEODORE MANDER.

ROBERT FRANCIS MARTINEAU.

HUME CHANCELIOR PINSENT.

EDWIN RICKARDS.

CHARLES SHOWELL.

Class (3)—

Sir JAMES SMITH.

MAURICE POLLACK.

WILLIAM THOMAS GUSTAVUS COOK.

JOHN HENRY LLOYD.

ALFRED JOHN REYNOLDS.

Class (4)—To be appointed.

Class (5)—To be appointed.

## SECOND SCHEDULE.

# STATUTES OF THE UNIVERSITY.

## SECTION I.

### PRELIMINARY.

In these Statutes :—

“ University ” means the University of Birmingham.

“ Court ” means the Court of Governors of the University.

“ Council ” means the Council of the University.

“ Senate ” means the Senate of the University.

“ Faculty ” means a Faculty of the University.

“ Chancellor ” “ Pro-Chancellor ” “ Vice-Chancellor ”  
“ Pro-Vice-Chancellor ” “ Principal ” “ Vice-Principal ” and “ Deans of the Faculties ”  
mean respectively the Chancellor Pro-Chancellor Vice-Chancellor Pro-Vice-Chancellor Principal Vice-Principal and Deans of the Faculties of the University.

“ Statutes ” means the Statutes of the University.

“ Ordinance ” means Ordinance made pursuant to the Statutes.

“ Regulation ” means Regulation made pursuant to the Charter or Statutes.

“ Graduate ” means Graduate of the University.

“ Under-graduate ” means Under-graduate Student of the University.

“ Professor ” means Professor appointed to be such in the University.

- “Treasurer” means Treasurer of the University.  
“Secretary” means Secretary of the University.  
“Registrar” means Registrar of the University.  
“Financial year” means the yearly period for which the accounts and financial affairs of the University are for the time being made up arranged and calculated.  
“Auditor” means Auditor of the University Accounts.  
“Good cause” when used in reference to removal from office membership or place means (1) misbehaviour in office (2) being a lunatic (3) conviction of any felony (4) conviction of any misdemeanour which shall be judged by the authority invested with the power of removal to be of an immoral scandalous or disgraceful nature (5) actual incapacity in or for the execution of the duties of the office membership or place or (6) any misbehaviour of an immoral scandalous or disgraceful nature rendering the holder of the office membership or place unfit in the opinion of the authority invested with the power of removal to continue such holder.
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## SECTION 2.

### THE CHANCELLOR.

- 1.—The Chancellor shall be elected by the Court but his election must to be effective be approved by the Crown.
  - 2.—The Chancellor shall hold office during good behaviour.
  - 3.—The Chancellor may be removed for good cause by the Visitor at the instance of the Court.
  - 4.—The Chancellor may resign by writing addressed to the Court and signed by him.
  - 5.—The above provisions so far as applicable apply to the First Chancellor.
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## SECTION 3.

## THE VICE-CHANCELLOR AND PRO-VICE-CHANCELLOR.

1.—The Vice-Chancellor and Pro-Vice-Chancellor shall be elected by the Court but if the Chancellor shall object to the election of any person and show cause for his objection to the Visitor the Visitor may in his discretion annul the election.

2.—The said Officers shall hold office during good behaviour.

3.—Either of the said Officers may be removed for good cause by the Visitor at the instance of the Court.

4.—The said Officers may respectively resign by writing signed by them addressed to the Chancellor.

5.—The above provisions so far as applicable shall apply to the First Vice-Chancellor and Pro-Vice-Chancellor.

## SECTION 4.

## PRINCIPAL.

1.—The Principal shall be appointed by the Crown.

2.—The Principal shall hold office during good behaviour.

3.—The Principal may be removed for good cause by the Visitor at the instance of the Court.

4.—The Principal may resign by writing addressed to the Court and signed by him.

## SECTION 5.

## VICE-PRINCIPAL AND DEAN OF THE FACULTY OF MEDICINE.

1.—The Vice-Principal and Dean of the Faculty of Medicine shall be appointed by the Council.

2.—The Vice-Principal and the said Dean shall hold office during good behaviour.



3.—The said Officers may be removed by the Council for good cause provided that such removal shall only be carried by a Resolution of the Council passed at a meeting at which not less than an absolute majority of the whole Council are present and vote and carried at such meeting by the vote of two-thirds of those present.

4.—The said Officers may respectively resign their offices by writing signed by them and addressed to the Vice-Chancellor.

5.—The above provisions so far as applicable shall apply to the First Vice-Principal and Dean of the Faculty of Medicine.

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## SECTION 6.

### THE TREASURER.

1.—The Treasurer shall be appointed by the Court and shall be ex-officio a member of the Court.

2.—The Treasurer's term of office shall be five years from appointment and subject thereto during good behaviour.

3.—The Treasurer shall furnish such security as the Council think fit to require but it shall not be obligatory on the Council to demand security from the Treasurer.

4.—The Treasurer shall be removable from office for good cause by the Council.

5.—The Treasurer may resign by writing under his hand addressed to the Vice-Chancellor.

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## SECTION 7.

### THE SECRETARY.

The Council shall from time to time appoint a Secretary of the University for such term and at such remuneration as it shall deem fit who may be suspended or dismissed by the Council in its discretion.

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## SECTION 8.

## THE REGISTRAR.

The Council shall from time to time appoint a Registrar of the University for such term and at such remuneration as it shall deem fit who may be suspended or dismissed by the Council in its discretion.

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## SECTION 9.

## AUDITOR.

1.—The Court shall from time to time appoint an Auditor who shall not nor shall any member of his firm be a member of any of the University Governing Bodies but shall be a member of the Institute of Chartered Accountants of England and Wales in the active practice of his profession.

2.—The Auditor's term of office shall be three years subject to good behaviour.

3.—The Auditor may be removed for good cause by the Court.

4.—The Auditor shall receive such remuneration as may be agreed to by the Council.

5.—The Auditor shall give such certificates as the Regulations prescribe.

6.—The Auditor may resign in writing addressed to the Council.

7.—Acceptance of office by an Auditor shall be deemed to carry with it an undertaking by the Auditor to the University that every certificate given by him or passing of accounts by him implies that he satisfied himself by full and careful investigation (made by himself or agents for whom he undertakes to be responsible) by every reasonable means within his power or reach and after the exercise of due professional skill that the statements in the certificate are true and accurate and that any accounts certified or passed are complete true and accurate.

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## SECTION 10.

## MEMBERS OF THE UNIVERSITY.

The following persons shall be Members of the University :

## Class A—

Members of the Court.  
Members of the Council.  
Members of the Senate.

## Class B—

The officers of the University hereinbefore mentioned other than the Auditor.

## Class C—

Such Members of the Teaching Staff of the University as shall under Ordinances or Regulations made by the Council enjoy the status of members.

## Class D—Graduates.

## Class E—Undergraduates.

Membership of the University shall continue so long only as the qualifications above enumerated continue to be possessed by the individual member and expiration of the term of office removal from or resignation of office or withdrawal or resignation of the qualification (as the case may be) shall terminate the individual's membership of the University.

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SECTION 11.

## THE COURT.

1.—The following shall be Members of the Court :

Class (1) The Life Governors who are nominated in the First Schedule to these Presents and their successors.

Class (2) Five persons to be appointed by the Municipal Council of the City of Birmingham.

Class (3) One member for each of the County Councils of Warwickshire Worcestershire Staffordshire Shropshire Leicestershire Derbyshire Rutlandshire to be

appointed by the respective County Councils and one member for the Council of every County Borough (other than the City of Birmingham) in the said Counties and for the Council of the Borough of Kidderminster to be appointed by the respective Councils and one member for the School Board of every School Board for a County Borough (other than Birmingham) in the said Counties and one member for such other Counties Municipal Boroughs or School Boards as the Court by resolution prescribe.

Class (4) One person to be appointed by the Birmingham School Board.

Class (5) Persons appointed as follows—

One by the Lord President for the time being of Her Majesty's Privy Council.

One each by the Chancellors for the time being of the Universities of Oxford Cambridge London Wales the Victoria University and the University of Birmingham.

One by the Warden of Durham University.

One by the Royal College of Physicians of London.

One by the Council of the Royal College of Surgeons of England.

Class (6) Ten of the Members of Parliament elected for the Boroughs Counties and Divisions of Counties or Boroughs in the said seven Counties to be nominated by the Court.

Class (7) The following officials shall be members of the Court ex-officio—

The Lord Mayor of Birmingham.

The Lords Bishops of Worcester and Lichfield the Bishop of Coventry and the Roman Catholic Bishop of Birmingham.

The Chairman of the Guardians of the Poor of the Parish of Birmingham.

The Chairman of the Birmingham School Board.

The Bailiff of the Governors of the Foundation of King Edward VI. Birmingham.

The Senior Vice-President of the Birmingham and Midland Institute.

The Head Master of the High School on the Foundation of King Edward VI. Birmingham.

The Head Masters of Rugby Repton Shrewsbury Uppingham and Malvern.

The Head Masters of the Grammar Schools on the Foundation of King Edward VI. Birmingham.

The Head Mistress of the High School for Girls on the Foundation of King Edward VI. Birmingham.

The Head Master of the Birmingham Municipal School of Art.

The Principal of the Birmingham Municipal Technical School.

The President of the Birmingham and Midland Counties Branch of the British Medical Association.

The President of the Central Counties Branch of the British Dental Association.

The President of the Birmingham Clinical Board.

The President of the Birmingham Law Society.

The Chairman of the Committee of the General Hospital Birmingham.

The Chairman of the Committee of the Queen's Hospital Birmingham.

The Principal and Vice-Principal.

The Deans of the Faculties.

The Professors of the University.

The Honorary Secretary of the Dental Department of the University.

Class (8) Six persons elected by the Guild of Graduates.

Class (9) Three persons elected by the Guild of Undergraduates.

Class (10) Every donor to the funds of the University to the amount or value of £1,000 or upwards whether by one or more donations or by instalments shall be a member for life.

Class (11) Every such donor as in Class (10) referred to making the donation by testament shall be entitled to appoint by testament or by will to authorise his personal representatives on one occasion to appoint some person to be a life member.

Class (12) Any Corporation Local Authority Company Association or Partnership making such a donation as in Class (10) mentioned shall be entitled on one occasion to appoint one person to be a life member.

Class (13) Such representatives of affiliated colleges as may be appointed under Section 20 of these Statutes.

Class (14) Such other persons not exceeding 20 in number as may be elected by the Court who shall be members for such periods as the Court at the time of election appoints.

Class (15) One member to be appointed by each of the following eleven Associations of Voluntary Elementary Schools viz. :—

*Church of England Associations.*

*Diocese of Worcester (comprising the Counties of Worcester and Warwick).*

- (a) The Church Schools Association for the Diocese of Worcester.
- (b) The Church Schools Sub-Association for the Archdeaconry of Worcester.
- (c) The Church Schools Sub-Association for the Archdeaconry of Coventry.
- (d) The Church Schools Sub-Associations for the Archdeaconry of Birmingham.

*Diocese of Lichfield.*

The Church Schools Associations for the Diocese of Lichfield as under—

- (e) The Staffordshire Voluntary Schools Association and its two divisions.



- (f) The North Staffordshire Sub-Association.
- (g) The South Staffordshire Sub-Association.
- (h) The North Salop Voluntary Schools Association.

*Roman Catholic Association.*

- (i) Birmingham Diocesan Catholic Schools Association. (Comprising the Counties of Worcester Warwick Stafford and Oxford.)

- (j) Midland Association of Wesleyan Day Schools. (Comprising the Counties of Leicester Stafford Warwick Worcester and parts of Cheshire Derby Lincoln (Kesteven) Notts Salop and York (W.R.)
- (k) The Midland Counties Association of British and other Voluntary Schools. (Comprising the Counties of Derby Leicester Notts Salop Warwick and parts of Staffordshire and Worcester-shire )

2.—Any vacancy occurring in the number of Life Governors in Class (1) may be filled up by the election by the Court of Governors of some fit person to be a Life Governor of the University.

3.—All casual vacancies shall be filled up as soon as conveniently possible by the person or body which appointed the member whose place has become vacant and the appointee to a casual vacancy shall be a member for the residue of the term for which the person in whose place he is appointed was member.

4.—The members in Class (2) shall hold office for five years and one is to vacate office in every year on the 1st day of December. The first vacation to be in the year 1901. The Municipal Council shall as soon as may be after the date of these presents determine the order in which their first appointees shall retire and vacancies by retirement shall be filled at such times and in such manner as the said Council directs,

5.—The members in each of Classes (3) (4) (5) (8) (9) (13) and (15) shall hold office for three years dating from January 1st in every year and vacancies by retirement shall be filled at such time and in such manner as the appointors respectively think fit. The first members shall act as such as from the date of these presents but shall reckon their term of office as from January 1st 1900.

6.—The members in Class (6) shall continue members so long as they continue Members of Parliament and no longer. Vacancies shall be filled as they occur and as soon thereafter as conveniently may be.

7.—Members retiring by effluxion of time may be re-elected.

8.—Members (other than ex-officio members) may be removed for good cause by the Court.

9.—Members need not be members of the bodies by which they are appointed.

10.—Women may be members of the Court.

11.—Where members of the Court comprised within any of the classes aforesaid have not been nominated in the First Schedule to the Charter such members shall be appointed in accordance with this section as soon as may be after the date of the Charter.

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## SECTION 12.

### THE COUNCIL.

1.—The Council shall consist of the following members, viz. :—

Class (1) The Chancellor the Vice-Chancellor Pro-Vice-Chancellor Treasurer Principal Vice-Principal and Dean of the Faculty of Medicine.

Class (2) At least twelve members of the Court appointed by the Court.

Class (3) The five persons appointed by the Birmingham City Council to be members of the Court.

Class (4) The Deans of the Faculties other than the Faculty of Medicine.

Class (5) A representative of the Faculty of Medicine elected by the members of that Faculty.

2.—Class (2) shall hold office for four years and Classes (4) and (5) for three years. The term shall in the case of the first appointment be reckoned as from the date of the Charter and in case of any subsequent appointment from the date of such appointment or re-appointment as the case may be.

3.—Of Class (2) one-fourth or the number nearest to one-fourth shall retire every year. The Court shall determine the order in which the first members of Class (2) shall retire. Every retiring member of this class shall continue to act until his successor is appointed.

4.—All casual vacancies shall be filled up as soon as conveniently may be by the body which appointed the member whose place has become vacant and the appointee to a casual vacancy shall be a member for the residue of the term for which the person in whose place he is a member was appointed.

5.—Except as expressly above provided appointees need not be members of the body by which they are appointed.

6.—Members retiring by effluxion of time may be re-elected.

7.—Members (others than ex-officio members) may be removed for good cause by the Court.

8.—In case any member of the Council comprised within any of the above classes has not been nominated in the First Schedule to the Charter he shall be appointed in accordance with this Section as soon as possible.

9.—Class (2) aforesaid shall be increased by three members for every member of the Senate also member of the Council who brings up the number of members of the Senate who are members of Council to a number

exceeding the proportion provided by the Charter. Such additional members shall be elected as soon as possible after the cause of election arises.

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### SECTION 13.

#### THE SENATE.

1.—The Senate shall consist of the Principal Vice-Principal the Deans of all the Faculties and all the Professors of the University for the time being.

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### SECTION 14.

#### ORDINANCES.

1.—The Council shall make Ordinances with regard to such matters as are directed by the Statutes.

2.—Ordinances shall be effective and binding when sanctioned by the Court except that in cases certified to be urgent by a vote to that effect of not less than an absolute majority of the Council Temporary Ordinances may be made and shall be operative from a date prescribed by the Council until the then next meeting of the Court at which the Ordinance can be considered.

3.—Ordinances shall subject to the Charter and Statutes deal with the following matters:—

- (a) The finances investments and accounts of the University.
- (b) The constitution functions and privileges of the Guilds of Graduates and Under-Graduates and other matters connected with the said Guilds requiring to be prescribed.
- (c) The Degrees Diplomas Certificates and distinctions (honorary and substantive) to be awarded by the University the qualifications for the same inclusive of examinations and the means and steps to be taken relative to the granting and obtaining of the same.

- (*d*) Prescriptions regarding the discipline to be enforced in regard to the Graduates and Under-Graduates.
  - (*e*) The withdrawal of Degrees Diplomas Certificates and Distinctions.
  - (*f*) The removal from Membership of the University of Graduates and Under-Graduates.
  - (*g*) Such subjects as are required by the Statutes to be prescribed by means of Ordinances.
  - (*h*) The inspection and examination of Schools and other Institutions and the Scholars and Students therein and the grant of Certificates of Proficiency.
  - (*i*) The provisions and tenure of such Fellowships Scholarships Exhibitions prizes rewards and pecuniary and other aids as are referred to in Section 16 of the Statutes.
  - (*k*) The payment and amount of fees to be exacted within the University or in relation to the enjoyment of privileges therefrom.
  - (*l*) The emoluments allowances salaries and superannuation allowances of the Officers of the University its Professors Lecturers Teaching Staff Secretary Registrar and permanent servants.
  - (*m*) The provision employment tenure of office and terms and manner of appointment and the duties of and teaching by Professors Lecturers and Teaching Staff.
  - (*n*) The conditions of affiliation of Colleges.
  - (*o*) The provision maintenance and supervision of Halls or other premises for the residence of students.
  - (*p*) The duties and powers of Faculties and Advisory Boards.
  - (*q*) The tenure of office and terms and manner of appointment and the duties of the Examiners Examining Boards Secretary Registrar Librarian and permanent servants.
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## SECTION 15.

## FACULTIES.

1.—There shall be within the University the Faculties following :—

- (1) Science.
- (2) Arts.
- (3) Medicine.
- (4) Commerce.
- (5) Such others as may be added by Statute.

2.—Ordinances shall prescribe which professors and teachers shall be members of or be attached to the several Faculties. The Principal and Vice-Principal shall be members of all Faculties. Ordinances shall also provide for the subjects which are to be within the cognizance of the respective Faculties.

3.—In the Faculties other than that of Medicine the respective Deans shall be appointed by the Members of the Faculty and shall hold office for three years.

4.—In each Faculty the Dean shall preside over the Meetings of his Faculty.

5.—The Deans other than the Dean of the Faculty of Medicine shall be removable for good cause by the Faculty appointing them respectively with the sanction of the Council.

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SECTION 16.

## TEACHING.

The University shall so far as and to the full extent which its resources from time to time permit provide for :—

- (a) Instruction and teaching in every Faculty.
- (b) Such instruction in all branches of liberal education as may enable students to become proficient in and qualify for degrees diplomas and certificates in science commerce arts literature law medicine surgery and all other branches of knowledge.



- (c) Such instruction especially whether theoretical technical artistic or otherwise as may be of service to persons engaged or about to engage in the manufactures commerce and industrial pursuits of the Midland Districts of England.
  - (d) Facilities for the prosecution of original research in science literature arts medicine surgery law and especially the applications of science.
  - (e) Such fellowships scholarships exhibitions prizes and rewards and pecuniary and other aids as shall facilitate or encourage proficiency in the subjects taught in the University and also original research in every branch.
  - (f) Such extra-collegiate and extra-university instruction and teaching as may be sanctioned by ordinances.
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## SECTION 17.

### UNIVERSITY EXAMINATIONS.

1.—Except in the case of subjects not taught in the University the Examiners of the University shall be the Professors of the University with such Lecturers of the University as the Council from time to time appoint and such External Examiners not being Professors Lecturers or Teachers in the University as may be from time to time appointed by the Council. Provided that at least one such External Examiner shall be appointed by the Council for each subject or group of subjects forming part of the courses of studies required for University degrees.

2.—All matters respecting the subjects time and mode of the Examinations, and respecting the degrees and distinctions to be conferred by the University shall be provided for by Ordinance. Provided always that all Examinations of members of the University shall be conducted jointly by External Examiners and by Examiners being Professors or Lecturers of the University.

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## SECTION 18.

## COMMITTEES.

1.—The Court Council and Senate may respectively appoint such and so many standing and special Committees as may seem to them fit for the purpose of dealing with any subjects or matters delegated to such Committees. The Committees' powers shall be such as the bodies appointing them from time to time direct and may be revoked altered or enlarged as to the appointing bodies shall seem meet. Every Committee shall report to the body appointing it but to the extent to which that body from time to time directs the proceedings and acts of Committees shall not require the approval of the appointing body.

2.—The Council shall make regulations for the proceedings of all Committees but subject thereto every Committee may regulate its own procedure times and places of meeting.

3.—The Vice-Chancellor shall ex-officio be a member of every Committee of the Court and Council and every joint Committee of the Court and Council.

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SECTION 19.

## ADVISORY BOARDS.

The Council may from time to time appoint Advisory Boards consisting either wholly or partly of members unconnected with the University upon such terms and for such purposes as the Council may consider advisable and may refer to them for advice and report any subject or matter in the Council's opinion requiring to be so dealt with. And such advice and report shall be duly considered and weighed by any body in the University to which the Council direct such advice to be given or report to be made.

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## SECTION 20.

## AFFILIATION.

1.—The University shall have power to affiliate Colleges which may have attained a standard which shall be deemed satisfactory by the University to require contributions for University purposes from such Colleges as a condition of affiliation or otherwise and to make ordinances for regulating their relations to the University and in particular for regulating the number of the representatives of such Colleges on the University Court.

2.—The University may recognise attendance upon courses of study in an affiliated College as wholly or in part qualifying students for graduation. Provided that the recognition of lecturers teachers and examiners the regulations respecting the period of attendance upon and the character and subjects of such courses and the period of attendance at such College and the period of collegiate study for which exemption is to be granted shall be approved by the Council and provided also that the Council shall not approve thereof unless the Senate have recommended the same or unless and until the Senate shall have had a reasonable opportunity of considering and reporting thereupon to the Council.

3.—Notwithstanding that a subject is not taught in the University the Court shall have power to recognise a College in which such subject is taught and to recognise such subject as a subject for degrees in the University. Provided that pursuance of a scheme of study in that subject approved by the Council be a condition precedent to examination in that subject.

## SECTION 21.

## MEETINGS OF THE COURT.

1.—A meeting hereinafter distinguished as the “yearly meeting” of the Court shall be held once a year in the month of January or February at such day and hour as shall be appointed by the Council with the approval of the Chancellor and at such yearly meeting a Report of

the Proceedings of the Council and of the University together with a Statement of the Receipts and Expenditure and the Balance Sheet as audited shall be presented by the Council to such meeting.

2.—For the purposes of transacting the business in the preceding clause mentioned a quorum of the Court shall be twenty members.

3.—All other business at the yearly meeting shall be deemed special business and for the purpose of any such special business and also for the purposes of all special general meetings the quorum shall be eighty members.

4.—In the absence of a quorum no business but the adjournment of the Court can be transacted.

5.—Special general meetings may be convened by the Council at any time.

6.—Twenty-one days' notice of the yearly meeting shall be sent by the Secretary to every member of the Court.

7.—Members intending to bring forward any special business at the yearly meeting shall give notice of such business to the Secretary at least fourteen days before the day appointed for such meeting and at least seven days notice of all special business to be brought forward at the yearly meeting shall be sent to every member of the Court.

8.—Twenty-one days' notice of any special general meeting stating generally the nature of the business to be transacted shall be sent to each member of the Court and no meeting shall be competent to transact any other business than that mentioned in the notice or directly arising thereout. Provided always that this clause shall not interfere with the operation of clause 7 of this section.

9.—The procedure at meetings of the Court shall be in accordance with the regulations made for governing the same as provided by the Charter.

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## SECTION 22.

## POWERS OF THE COURT.

1.—The Court shall exercise all the powers and authority of the University except to the extent to which the exercise of the same may by the Charter Statutes and Ordinances be otherwise provided for.

2.—To make Statutes either at its own initiative or on the proposal of the Council.

3.—All Statutes must be passed at one meeting of the Court and confirmed at the next and special notice of the fact that Statutes will be considered and containing a short statement of the nature of the proposed Statutes must have been given with respect to each of the two meetings aforesaid.

4.—A Special Resolution of the Court means a resolution passed at one meeting of the Court and confirmed at a subsequent meeting held not less than one calendar month nor more than three calendar months after the former provided the resolution be passed at each meeting by a majority of not less than two-thirds of those present and voting.

5.—The Court shall exercise control over the Senate through the Council and not otherwise and over the Council by means of Statutes and of Resolutions passed in plenary sittings of the Court and not otherwise.

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SECTION 23.

## ACTS DURING VACANCIES.

1.—No act or resolution of the Court the Council or the Senate shall be invalid by reason only of any vacancy in the body doing or passing it or by reason of any want of qualification by or invalidity in the election or appointment of any de facto member of the body (whether present or absent).

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## SECTION 24.

## POWERS OF THE COUNCIL.

1.—Subject to the Charter and the Statutes and any Ordinances and Regulations made in pursuance thereof the Council shall have the following Powers :—

1. To draft statutes as and when they see fit and submit the same to the Court for consideration and enactment.
2. To make ordinances for any matters in respect of which ordinances are authorised to be made.
3. To make regulations for any purposes for which regulations are authorised to be made.
4. To exercise all such powers as are conferred on the Council by the Charter Statutes Ordinances and Regulations and carry the Charter Statutes Ordinances and Regulations into effect.
5. To review and control or disallow any act of the Senate and give directions to be obeyed by the Senate.
6. To govern manage and regulate the finances accounts investments property business and all affairs whatsoever of the University.
7. To make contracts on behalf of the University.
8. To sell buy exchange lease or take leases of the University's real and leasehold estates.
9. To provide the buildings premises furniture and apparatus and other means needed for carrying on the business of the University.
- 10.—To supervise the Instruction and Teaching of the University.
- 11.—To entertain adjudicate upon and if thought fit redress the grievances of members of the Senate on appeal against the acts of the Senate and of the Officers of the University the Professors the Teaching Staff the Graduates Under-Graduates and the University Servants who may for any reason feel aggrieved otherwise than by an Act of the Court.



12. To select a seal and arms for the University and have the sole custody and use of the seal.
13. To borrow money on behalf of the University and for that purpose (if the Council think fit) to mortgage all or any part of the property of the University whether real or personal or give such other security whether upon such real or personal property or otherwise as the Council think fit.

2.—The Council shall obey and carry out the Statutes and the Resolutions of the Court.

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## SECTION 25.

### POWERS OF THE SENATE.

1.—The Senate shall subject to review by the Council have the government management and carrying out of the curriculum instruction and education afforded by the University the examinations held by the University recommendations for degrees diplomas certificates fellowships and scholarships and the discipline (whether intra-mural or extra-mural) of the students or undergraduates of the University and the carrying out of such discipline.

2.—Such matters as shall be committed to the Senate by the Council shall be transacted by the Senate.

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## SECTION 26.

Contracts made by or on behalf of the University shall be validly made and binding on the University if made as follows—

- (1) Any contract which if made between private persons would be by law required to be in writing and if made according to English law to be under seal may be made on behalf of the University in writing under its common seal and such contract may be in the same manner varied or discharged.
- (2) Any contract which if made between private persons would be by law required to be in writing and signed by the parties to be charged therewith

may be made on behalf of the University in writing signed by any person acting under the express or implied authority of the Council and such contract may in the same manner be varied or discharged.

- (3) Any contract which if made between private persons would by law be valid although made verbally only and not reduced into writing may be made either in writing or verbally on behalf of the University by any person acting under the express or implied authority of the Council and such contract may be in the same way varied or discharged.

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#### SECTION 27.

1.—These Statutes shall be interpreted in such manner as not to conflict with the Charter.

2.—Words defined in the Charter or Statutes shall have the same meaning in the Ordinances and Regulations unless the context be repugnant thereto.

**In Witness** whereof We have caused these Our Letters to be made patent. **Witness** Ourself at Westminster the twenty-fourth day of March, in the sixty-third year of Our reign.

**By Warrant** under the Queen's Sign Manual.

MUIR MACKENZIE.



## Birmingham University Act 1900.

### ARRANGEMENT OF SECTIONS.

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## AN ACT

To Transfer all the property and liabilities of Mason University College in the City of Birmingham to the University of Birmingham, and to repeal the Mason University College Act 1897 ; to confer certain powers on the said University ; and for other purposes.

[*Royal Assent, 25th May, 1900.*]

Preamble.

WHEREAS the late Sir Josiah Mason founded out of his own resources in Birmingham an institution for the promotion of thorough systematic education and instruction specially adapted to the practical mechanical and artistic requirements of the manufactures and industrial pursuits of the Midland District of England which subsequently became known as the Mason Scientific College :

And whereas the said Institution was by the Mason University College Act 1897 incorporated under the name of Mason University College with a new constitution and powers and all the lands and other property vested in the Trustees of the said Institution were by the said Act vested in the said College :

And whereas the said Act expressly contemplated that the said College might become a member of a University to be established having power to grant degrees in arts sciences medicine and surgery :

And whereas upon the petition of the said College and of the Corporation of the City of Birmingham and of the School Board for the said City and of the

Governors of the Grammar School of King Edward the Sixth in the said City and others Her Majesty has been pleased to grant a Charter establishing in the said City of Birmingham a University by the name and style of the University of Birmingham with faculties of Science Arts Medicine and Commerce and such other faculties as the Statutes of the University may from time to time prescribe :

And whereas the said Charter directs that the University shall be both a Teaching and an Examining University and shall further the prosecution of original research in all its branches :

And whereas the Governors of the said College are desirous and it is expedient that the College be merged in the University and that all its property and liabilities be transferred to and vested in the University and that the Mason University College Act 1897 be repealed :

And whereas the Council of the City of Birmingham and the Overseers of the Poor of the Parish of Birmingham are desirous and it is expedient that the exemption from local rates granted to the said College be continued to the said University :

And whereas it is expedient to empower the said University to hold examinations under section three of the Medical Act 1886 and to elect a representative on the General Council mentioned in section seven of the same Act : <sup>49 & 50 Vic c. 48.</sup>

And whereas it is provided by a Scheme made by the Court of Chancery which is scheduled to and

confirmed by the Queen's College Birmingham Act 1867 that the physicians and surgeons of the Queen's Hospital at Birmingham shall hold their respective offices on condition of giving to all students of the Queen's College at Birmingham such clinical instruction in kind and quantity and in such manner as shall from time to time be required by the medical examining boards therein referred to and that the students of the said College shall at all times have free access to the said Hospital for the purposes of clinical instruction upon payment of such fees and on such other terms and conditions as shall be from time to time agreed and that any dispute between the said College and the said Hospital regarding such fees terms or conditions or otherwise regarding the privileges to be enjoyed by the students of the said College or any such dispute as therein mentioned between the said Hospital and any physician or surgeon thereof shall be referred to the visitor of the said College whose decision shall be binding on the parties to the dispute :

And whereas in pursuance of an Order of the Chancery Division of the High Court made by the Hon Mr. Justice Chitty at Chambers on the twenty-second day of June one thousand eight hundred and ninety-two the medical and dental departments of the said Queen's College were closed and abandoned and the anatomical and other collections books and other things specified in the said Order and formerly belonging to the said Queen's College were handed



over to and became the absolute property of the trustees of the Mason College:

And whereas the medical students of the Mason College have accordingly since the latter part of the year one thousand eight hundred and ninety-two received clinical instruction from the physicians and surgeons of the said Queen's Hospital:

And whereas it is now desirable to continue to the students in the Faculty of Medicine of the University the same rights and privileges as have been enjoyed first by the medical students of Queen's College and latterly by the medical students of Mason College under the provisions of the above-recited Scheme and Order:

And whereas it is expedient that the other provisions contained in this Act be made:

And whereas the objects of this Act cannot be attained without the authority of Parliament:

MAY IT THEREFORE PLEASE YOUR MAJESTY

That it may be Enacted and BE IT ENACTED by the Queen's Most Excellent Majesty by and with the advice and consent of the Lords Spiritual and Temporal and Commons in this present Parliament assembled and by the authority of the same as follows (that is to say):—

1.—This Act may be cited as the Birmingham Short title.  
University Act 1900.

2.—This Act shall come into operation on the first Commencement  
of Act.  
day of October one thousand nine hundred which date is hereinafter referred to as the commencement of this Act.

Dissolution of  
Mason  
University  
College and  
repeal of Act  
of 1897.

3.—On the commencement of this Act Mason University College shall be dissolved and the Mason University College Act 1897 shall be repealed without prejudice to anything lawfully done or suffered thereunder and in particular without prejudice to the provisions of Part III. of the said Act for confirming or rendering valid certain leases sales exchanges estates interests rights payments and contracts therein referred to.

Transfer of  
property to  
University of  
Birmingham.

4.—On the commencement of this Act all property real and personal of every description (including things in action) which immediately before the passing thereof belonged to or was vested in Mason University College shall be by virtue of this Act without any conveyance or other instrument transferred to and vested in the University of Birmingham for all the estate and interest therein of Mason University College and shall be applied to the objects and purposes for which the University is incorporated.

Appeal to  
visitor with  
respect to  
management of  
property &c.

5.—(1) Any three Governors present at a meeting of the Council of the University and voting against any resolution passed or order made at such meeting with respect to any lease sale exchange mortgage disposition or contract of or relating to any property of the University or with respect to the borrowing of money may appeal against such resolution to the visitor subject to the following conditions :—

(A) The appeal must be made in writing signed by the appellants within seven days after the date of the meeting :

(B) Notice of the appeal stating the grounds thereof in writing signed by one or more of the appellants must be given to the Secretary of the University within the said period of seven days.

(2) The visitor shall if desired hear the appellants and the Council and the decision of the visitor allowing disallowing or modifying the resolution or as the case may be shall be binding and final.

6.—On the commencement of this Act all debts and liabilities of Mason University College shall be by virtue of this Act transferred and attach to and be discharged and satisfied by the University of Birmingham.

Transfer of liabilities to University of Birmingham.

7.—All agreements awards contracts deeds and other instruments and all actions and proceedings and causes of action or proceedings which immediately before the commencement of this Act were existing or pending in favour of or against Mason University College shall continue and may be carried into effect enforced and prosecuted by or in favour of or against the University of Birmingham to the same extent and in like manner as if the University instead of the College had been party to or interested in the same respectively.

Saving for agreements deeds actions &c.

8.—The power or right of Mason University College to appoint or nominate a member of the Governing Body of any educational or charitable institution shall on the commencement of this Act be transferred to

Transfer of powers to nominate members of certain governing bodies.

and may be exercised by the Council of the University of Birmingham.

Power of  
University of  
Birmingham to  
hold  
examinations  
under 49 & 50  
Vict. c. 48.

9.—The University of Birmingham is hereby empowered to hold qualifying examinations in medicine surgery and midwifery for the purpose of registration under the Medical Acts as if the University had been a university in the United Kingdom legally qualified at the passing of the Medical Act 1886 to grant diplomas in medicine and surgery; and the provisions of Part I of that Act shall be read and have effect accordingly.

Power of  
University  
to choose  
representative  
on General  
Medical  
Council.

10.—The Council of the University of Birmingham shall be entitled to choose one representative to be a member of the General Council constituted by the Medical Acts; and section seven of the Medical Act 1886 shall be read and have effect as if the University of Birmingham had been expressly included therein.

Exemption of  
University  
from rates.

11.—The University of Birmingham shall not be assessed or rated to pay or contribute to any borough improvement or parochial rates in respect of any buildings lands or property of any description occupied by the University which were exempt from rating under the Mason University College Act 1897: Provided always that the exemption herein contained shall not extend to any part of such buildings land and property which shall for the time being be occupied by any member officer or servant of the

University and the parts of buildings so occupied shall be rated as separate tenements.

12.—All professors and other members of the teaching staff of Mason University College and all officers and servants of the College shall hold as nearly as practicable the same offices and places in the University of Birmingham as they held in the said College immediately before the commencement of this Act and upon the same terms and conditions unless and until the Council of the University otherwise decide.

Saving for existing officers of Mason University College.

13.—Clauses fifty and fifty-one of the Scheme set forth in the Schedule to the Queen's College Birmingham Act 1867 shall be read and have effect as if the University were mentioned therein instead of the College so that students in the faculty of medicine of the University shall have at all times provided for them by the physicians and surgeons of the Queen's Hospital at Birmingham such clinical instruction as therein mentioned and shall have free access to the said Hospital for the purposes of clinical instruction as therein mentioned. Provided that any such dispute between the University and the said Hospital or between the said Hospital and any physician or surgeon thereof as therein mentioned shall be referred to the visitor of the University whose decision shall be binding on the parties to the dispute.

Application of certain provisions of Scheme scheduled to Queen's College Birmingham Act 1867.

14.—The Charitable Trusts Acts 1853 to 1894 shall not extend to the University of Birmingham or any

As to jurisdiction of Charity Commissioners.



College or Hall therein and the said University and any such College or Hall shall be exempt from the control or jurisdiction of the Charity Commissioners.

Costs of Act

15.—The costs charges and expenses of and incidental to preparing obtaining and passing this Act shall be defrayed by the University of Birmingham out of the income of the property by this Act transferred to the University or if the Council of the University think fit out of money representing capital or to be raised by sale or mortgage of some part of the said property.

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#### NOTE ON CLAUSE 13.

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By an Act entitled "An Act for the Regulation of the Queen's College at Birmingham and for incorporating the Queen's Hospital at Birmingham" but having the short title of "The Queen's College Birmingham Act 1867" which received the Royal Assent on the 12th day of August 1867 the Queen's Hospital was separated from the Queen's College and separately incorporated by the title of "The Queen's Hospital Birmingham" but for the purpose of preserving the right the Queen's College had of clinical instruction for its students in the Hospital the following clauses Numbered 50 and 51 in the Scheme sanctioned by the Act were inserted in the Schedule to the Act:—

The Hospital shall be maintained as a Clinical Hospital and afford every facility for clinical instruction; and such persons shall from time to time be appointed to be Physicians and Surgeons of the Hospital whose certificates as to clinical instruction



shall be accepted by the Medical Examining Boards of the United Kingdom ; and such Physicians and Surgeons shall hold their respective offices on condition of giving to all students of the *College* such clinical instruction in kind and quantity and in such manner as shall from time to time be required by the said Medical Examining Boards.

The students of the *College* shall at all times have free access to the Hospital for the purposes of clinical instruction, upon payment of such fees and on such other terms and conditions as shall be from time to time agreed upon between the Council and the Hospital. Any dispute between the *College* and the Hospital regarding such fees terms or conditions or otherwise regarding the privileges to be enjoyed by the students of the *College* under this clause or the preceding clause or any dispute between the Hospital and any Physician or Surgeon thereof as to the preceding clause shall be referred to the Visitor of the *College*, whose decision shall be binding on the parties to the dispute.

The effect of clause 13 is to substitute *University* for *Queen's College*.

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## ORDINANCES OF THE UNIVERSITY.

MADE BY THE COUNCIL in accordance with the provisions of Section 14 of the Second Schedule to the Charter.

### FINANCES, INVESTMENTS, AND ACCOUNTS.

1.—The Finances, Investments and Accounts of the University shall be controlled by the Council, who shall report thereon from time to time to the Court as may be required by the regulations of the Court.

### FEEES.

2.—The payment and amount of fees to be exacted within the University or in relation to the enjoyment of privileges therefrom shall be determined by the Council.

### FELLOWSHIPS, SCHOLARSHIPS, EXHIBITIONS AND PRIZES.

3.—The provisions and tenure of Fellowships, Scholarships, Exhibitions, Prizes, Rewards and pecuniary and other aids, shall be determined by the Council on the recommendation of the Senate.

### FACULTIES.

4.—The Members of the FACULTY OF SCIENCE shall be the Principal and Vice-Principal, and the Professors of Mathematics, Physics, Chemistry and Metallurgy, Zoology, Botany, Geology, Engineering, and Brewing.

To this Faculty shall be attached the Professors of Anatomy, Physiology, Pathology and Bacteriology, Hygiene and Public Health, and Mental and Moral Philosophy.

5.—The Members of the FACULTY OF ARTS shall be the Principal and Vice-Principal, and the Professors of

Latin and Greek, English, French, German, and Mental and Moral Philosophy.

To this Faculty shall be attached the Professor of Mathematics.

6.—The Members of the FACULTY OF MEDICINE shall be the Principal and Vice-Principal, and the Professors of Anatomy, Physiology, Medicine, Surgery, Pathology and Bacteriology, Hygiene and Public Health, Therapeutics, Midwifery, Gynæcology, Forensic Medicine, Mental Diseases, Operative Surgery, Ophthalmology, and the Lecturer on Materia Medica.

To this Faculty shall be attached the Professors of Physics, Chemistry, and Zoology.

7.—The Members of the FACULTY OF COMMERCE shall be the Principal and Vice-Principal, the Professor of Commerce and Public Finance, and the Professors of Accounting and Commercial Law.

To this Faculty shall be attached the Professors of English, French, German, Mathematics, Philosophy, and History, and such other Professors as may for the time being be taking part in the courses of study prescribed for degrees in Commerce.

8.—Professors or Lecturers attached to any Faculty without being Members shall receive notice of and shall be entitled to attend all meetings of such Faculty, but shall be entitled to vote only upon questions relating to the subjects of their respective Chairs or Lectureships.

#### DUTIES AND POWERS OF FACULTIES.

9.—Each Faculty shall have the right of taking into consideration all matters bearing upon its work and development.

10.—Subject to approval by the Senate and Council each Faculty shall be responsible for the transaction of all academic business specially pertaining to it.

11.—It shall be the duty of each Faculty, subject to review by the Senate and Council, to draft regulations as to degrees, diplomas, certificates, scholarships and prizes falling within the province of the Faculty, and to draft the courses of study and the time-tables and schemes of examinations of the Faculty.

12.—It shall be the privilege and duty of each Faculty to report, according to the method provided by the Regulations for the time being, upon the candidates for, or persons to be proposed for, appointment to all teaching posts and examinerships belonging to the Faculty, before the appointments are made by the Council.

#### APPOINTMENT AND TENURE OF OFFICE OF PROFESSORS, LECTURERS, TEACHING STAFF AND OFFICERS.

13.—The manner of appointment and the duties of the Professors, Lecturers, Teaching Staff, External Examiners and Librarian, shall in each case be determined by the Council after report thereon by the Senate.

14.—The emoluments, allowances and salaries of the officers of the University, its Professors, Lecturers, Teaching Staff, Secretary, Registrar, and servants shall be determined by the Council.

15.—Professors and Independent Lecturers shall hold office during good behaviour, but may be removed by the Council for good cause as defined by the Statutes of the University ; provided also that it shall be competent for the Senate, either on its own initiative or upon request by the Council, to take into consideration the case of any Professor or Independent Lecturer, and for a majority of the members of the Senate present and voting at a duly convened meeting of the Senate (such voting to be by ballot), to represent to the Council that in the general interest of the University or for some special reason it is desirable that the engagement of any Professor or Independent Lecturer should be determined,

and upon receipt of such representation the Council may terminate the engagement of such Professor or Lecturer by six months' notice in writing.

16.—The engagements of members of the Teaching Staff (other than Professors and Independent Lecturers) and of the Secretary, Registrar, officers and servants of the University may, subject to any special provision in the terms of their engagements, respectively, be determined by three months' notice in writing on either side.

#### PROFESSORS AND LECTURERS.

17.—Each Professor and Lecturer shall, on his appointment, enter into an agreement with the University, which shall indicate :—

- (i.) The subject or subjects committed to the office undertaken ;
- (ii.) The arrangement as to stipend ;
- (iii.) Any special terms of the appointment.

18.—A Professor or Lecturer shall not resign his appointment except by three months' notice in writing, which notice shall end at the expiration of some one of the University terms as regulated by the Calendar of the University for the time being ; a Professor or Lecturer may, however, resign his appointment on the 30th of September in any year by giving notice in writing at any time in the preceding months of July or August, and the Council shall at all times have the power to waive notice to such extent as it may think fit.

#### EMERITUS PROFESSORS.

19.—The Court shall have power on the recommendation of the Council to confer the title of Emeritus Professor upon any Professor of the University on or after his retirement, in recognition of conspicuous services to the University. The title "Emeritus Professor" shall in no case be conferred unless the connexion with the



University shall have extended over a period of not less than ten academic years, and then only so long as the Professor in question does not hold another office of a similar character. An Emeritus Professor shall for all purposes of courtesy and on ceremonial occasions, be upon the same footing as members of the Senate, but shall not be entitled to perform any administrative or executive functions as a member of the Senate or otherwise. A previous and continuous term of service in Mason University College or in Mason College, Birmingham, or in the Faculty of Medicine of Queen's College, Birmingham, shall be deemed to be service in the University for the purposes of this Ordinance.

#### SPECIAL LECTURERS OR READERS.

20.—The Council shall have power on the recommendation of a Faculty and of the Senate to appoint as special University teachers persons whether on the regular teaching staff or not, and to recognise the courses delivered by them as qualifying courses for University Examinations and Degrees. Such persons shall be selected on the ground of scholarship or special knowledge and ability, and shall be appointed on such terms of tenure and status as the Council may decide.

#### DISCIPLINE.

21.—Every student shall be subject to such regulations as shall from time to time be passed by the Senate and approved by the Council.

22.—There shall be a Committee of Discipline, consisting of the Principal, the Vice-Principal, the Deans of the Faculties, and the Secretary of the University; which Committee shall report to the Senate.

23.—Every Professor, Reader, Lecturer, Assistant Lecturer, or Demonstrator shall have the power, and it shall be his duty, to check any disorderly conduct that may occur in a class room or laboratory, and if he deem



it necessary may require any student to withdraw from the room for the day. In the event of such an occurrence in a room under the charge of an Assistant Lecturer or Demonstrator, he shall report the matter without delay to his Professor or immediate chief.

24.—Professors, Lecturers, and other officers shall have the power to check disorderly or improper conduct, or any breach of Regulations arising in any part of the precincts of the University.

25.—Any member of the Discipline Committee shall have power to exclude any student from the University or its precincts until the next meeting of the Discipline Committee which shall be held as soon as possible after each such exclusion, and the circumstances of the case shall be laid before the meeting for further adjudication.

26.—The Discipline Committee shall have power to suspend any student from attendance at the University for any period not extending beyond the next meeting of the Senate. Every such suspension shall be reported to the Senate at its next meeting, and the Senate shall have power to extend the period of suspension for the remainder of a University term, and subject to the approval of the Council, to expel.

27.—Habitual neglect of work in any class, shall be regarded as a breach of discipline, and may subject the student to suspension.

#### MATRICULATION.

28.—Matriculation is the formal admission of a student to membership of the University.

29.—An Examination called the Matriculation Examination shall be held by the University at least once in each year at such time and in such subjects and under such conditions as may be prescribed by Regulations.

30.—Any person who shall have paid to the University the prescribed fee, and shall have satisfied such other

conditions as may be prescribed by Regulations, shall be entitled to be admitted to the Matriculation Examination.

31.—The University may by Regulations recognise the Matriculation or any other examination or examinations of any British or foreign University or of any public Educational Authority in his Majesty's dominions as exempting from the Matriculation Examination of the University or from any part thereof.

32.—Any person who shall have passed the Matriculation Examination, or a Schools' Leaving Examination of the University, or other examination or examinations recognised by the University as exempting from the Matriculation Examination, and shall have paid to the University the fee prescribed by these Ordinances, and shall have satisfied such other conditions as may be prescribed by Regulations, shall be entitled to be matriculated.

#### UNDERGRADUATES AND OTHER STUDENTS.

33.—Every person who has been matriculated shall be entitled to the privileges of membership of the University and of the Guild of Undergraduates, so long as he is in actual attendance on a course of study in the University approved by a Faculty of the University, but no longer.

34.—The University may admit all persons who shall have satisfied such conditions as may be prescribed by regulations to any of the courses of study offered by the University, although they have not passed the Matriculation Examination or any examination exempting from the Matriculation Examination; but such students shall not be entitled to be matriculated or to be members of the Guild of Undergraduates, nor shall they be entitled to wear the academic dress prescribed for Undergraduates.

## DEGREES IN THE FACULTIES OF SCIENCE AND ARTS.

35.—In the Faculty of Science there shall be the following degrees, viz. :—

Bachelor of Science,	to be denoted by the letters	B.Sc.
Master of Science,	„ „	M.Sc.
Doctor of Science,	„ „	D.Sc.

In the Faculty of Arts there shall be the following degrees, viz. :—

Bachelor of Arts,	to be denoted by the letters	B.A.
Master of Arts	„ „	M.A.
Doctor of Letters	„ „	D.Litt.
Doctor of Philosophy	„ „	D.Phil.

In the Faculty of Commerce there shall be the following degrees, viz. :—

Bachelor of Commerce, to be denoted by the letters  
B.Com.

Master of Commerce, to be denoted by the letters  
M.Com.

36.—The courses of study and the number and nature of the examinations qualifying for admission to these degrees respectively shall be prescribed by regulations.

37.—Attendance upon courses of study in the University shall not in general be accepted as any part of the qualification necessary for a degree unless the candidate for the degree shall have previously been matriculated; but in exceptional cases the Senate may recognise as part of such qualification attendance on courses of study taken previous to matriculation, provided always that no examination passed previous to matriculation be recognised as a qualifying University Examination.

38.—Except as hereinafter provided, no candidate shall be admitted to the degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least three years.

39.—No Bachelor of the University shall be admitted to the degree of Master until at least one year after the time of his admission to the degree of Bachelor.

40.—No Bachelor or Master of the University shall be admitted to the degree of Doctor until at least two years after the time of his admission to the degree of Bachelor.

41.—The Senate shall have the power of admitting graduates or persons who have passed Degree Examinations of other Universities to the courses and examinations for the higher degrees of Master and Doctor under conditions prescribed by Regulations without requiring such persons to attend the courses of study or pass the examinations qualifying for the degree of Bachelor. Such students after being matriculated shall be called Graduate Students, and shall be members of the Guild of Undergraduates.

42.—The Senate shall have the power of recognising attendance at another University or University College as part of the attendance qualifying for the Degree of Bachelor, and of recognising examinations passed at such other University as exempting from the first year's examination for such degree; provided that no candidate from another University be admitted to the Degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least two years.

#### PAST STUDENTS OF MASON UNIVERSITY COLLEGE.

43.—Students who have passed the Intermediate Examination in Science or Arts of the University of London after at least one session of regular study at Mason University College shall be excused the First

Year's Course and the Intermediate Examination, and shall enter on the Degree Course as second year students of the University.

44.—Persons who, on October 1st, 1900, were regular students of Mason University College having passed the Intermediate Examination in Science or Arts of the University of London, and having subsequently spent at least one session at the College in regular study for the Final Examination, may be excused the first two years and the Intermediate Examination and may enter as third year students of the University if, in the opinion of their Faculty, they have fulfilled in the College conditions sufficiently nearly corresponding to those laid down for second year students.

45.—Persons who, on October 1st, 1900, were regular students of Mason University College having passed the Intermediate Examination in Science or Arts of the University of London, and having subsequently spent at least two sessions at the College in regular study for the Final Examination may be excused the Intermediate Examination and further attendance at lectures, may enter the University and take rank as if they had completed three years at the University, and may present themselves at a Final Examination for a Degree if, in the opinion of their Faculty, they have fulfilled in the College conditions sufficiently nearly corresponding to those laid down for second and third year students of the University.

46.—Past Students of Mason University College who have passed the Bachelors' Examination in the University of London, after a course of at least one year's regular study at Mason University College in two subjects at least, shall be permitted to enter the University and present themselves at the Examination for the Master's Degree after at least one further year of study at the University, as if they had taken the Bachelor's Degree of the University of Birmingham.



## DEGREES IN THE FACULTY OF MEDICINE.

47.—In the Faculty of Medicine there shall be the following degrees, viz. :—

Bachelor of Medicine, to be denoted by the letters	M.B.
Doctor of Medicine,	" " M.D.
Bachelor of Surgery,	" " Ch.B.
Master of Surgery,	" " Ch.M.
Bachelor of Science in Public Health,	" B.Sc.
	(Public Health.)
Master of Science in Public Health,	" M.Sc.
	(Public Health.)
Bachelor of Dental Surgery "	" B.D.S.
Master of Dental Surgery "	" M.D.S.

48.—The courses of study and the number and nature of the examinations qualifying for admission to these degrees, respectively, shall be prescribed by Regulations.

49.—No attendance upon courses of study in the University shall be accepted as any part of the qualification for a degree, unless the candidate for the degree shall have previously passed the Matriculation Examination of the University as prescribed for Medical students or an examination recognised by the University as exempting from the same.

50.—Except as hereinafter provided, no candidate shall be admitted to either or both of the degrees of Bachelor of Medicine and Bachelor of Surgery unless he shall have attended the courses of study prescribed by Regulations extending over a period of at least five years after matriculation, of which the first four years must be spent in the University, and the fifth year either in the University of Birmingham or some other school or schools of medicine recognised for this purpose by the University.

51.—No candidate shall be admitted to the higher degrees of Master of Surgery or Doctor of Medicine unless he has attained both the degrees of Bachelor of Medicine and Bachelor of Surgery in the University, and until a further year shall have elapsed after such Bachelor's degrees were conferred.



52.—No candidate shall be admitted to the degree of Bachelor of Science in Public Health unless he has previously attained to both the degrees of Bachelor of Medicine and Bachelor of Surgery in the University.

53.—No candidate shall be admitted to the degree of Bachelor of Dental Surgery who has not obtained a License in Dental Surgery from some body legally entitled to confer such qualification, and until a period of twelve months shall have elapsed after he obtained such License.

54.—No candidate shall be admitted to the degree of Master of Dental Surgery unless he shall have previously attained to the degree of Bachelor of Dental Surgery, and until a further period of twelve months shall have elapsed after he obtained such Bachelor's degree.

55.—Notwithstanding the preceding ordinance, the Senate shall have the power of admitting graduates or persons who have passed Degree Examinations of other Universities to the courses and examinations for the higher degrees of Master and Doctor under conditions prescribed by Regulations without requiring such persons to attend the courses of study or pass the examinations qualifying for the degree of Bachelor. Such students shall be called Graduate Students, and shall be members of the Guild of Undergraduates.

#### PAST STUDENTS OF THE BIRMINGHAM SCHOOLS OF MEDICINE AND DENTISTRY.

56.—Persons who, on October 1st, 1900, were students of the School of Medicine and who originally entered as first year students of the school, and have since regularly pursued their studies in the school, shall be permitted to present themselves for the examinations of the University without passing its matriculation examination, and without repeating any courses of lectures which they may already have taken out.

57.—Students of the School of Medicine falling under the above category who have passed any medical examinations in any British or Irish University shall be allowed to count such examination or examinations in lieu of the corresponding examination or examinations in the University of Birmingham, but no such allowance shall be made in the case of students who have passed examinations conducted by licensing bodies other than Universities. Provided that in all cases it shall be essential that the student shall pass the Final Examination of the University of Birmingham.

58.—Past students of the Birmingham Medical School who have taken out their whole course in Birmingham, and are duly qualified Medical Men, shall be permitted at any period during the five years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degrees of Bachelor of Medicine and Surgery.

59.—Past students of the Birmingham Dental School (including those who qualified not later than the November, 1900, Examination of the Royal College of Surgeons of England) who have taken out their whole course in the Birmingham School, and are duly qualified and Registered Dental Surgeons, shall be permitted at any period during the five years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degree of Bachelor of Dental Surgery.

#### EXTERNAL EXAMINERS.

60.—The appointments of External Examiners shall be made in the first instance for one year, but may be renewed annually for the two following years.

#### EXAMINATIONS AND BOARDS OF EXAMINERS.

61.—The Matriculation Examination of the University shall be conducted by Professors or Lecturers of the

University appointed for this purpose by the Senate, without the assistance of External Examiners.

62.—Class Examinations and Examinations provided for students who are neither undergraduates nor candidates for any Degree of the University shall be conducted by the Professors or Lecturers of the University without the assistance of External Examiners.

63.—There shall be a Board of Examiners for the Matriculation Examination, consisting of the Principal and Vice-Principal and the Examiners who are taking part in the Examination, the Principal being Chairman of the Board.

64.—For every University Examination prescribed by the Regulations for Degrees of the University there shall be a Board or Boards of Examiners, consisting of the internal and external Examiners who are taking part in the conduct of the Examination, together with the Dean of the Faculty to which the Examination belongs. The Dean of the Faculty shall be the Chairman of all such Boards of Examiners as belong to that Faculty.

65.—The Principal and Vice-Principal shall be members of all the Boards of Examiners.

#### SCHEDULES OF QUALIFICATION.

66.—Before admission to any University Examination each candidate is required to present to the Registrar a Schedule of Qualification certifying that he has attended the lectures, classes, laboratory or hospital instruction prescribed by the Regulations for that examination to the satisfaction of the Professors or other teachers concerned, and that he has passed such class examinations and performed such other exercises as his teachers may prescribe in connexion with their own courses, to the satisfaction of the Faculty.

DEGREES, DIPLOMAS, SCHOLARSHIPS, AND OTHER  
UNIVERSITY HONOURS.

67.—The ordinary Degrees, Diplomas, Certificates, Scholarships, Prizes and Honours of the University (except Honorary Degrees) shall be awarded by the Council on the nomination of the Senate.

68.—Honorary Degrees may be conferred upon persons approved by the Council on the nomination of the Senate.

69.—Degrees whether ordinary or honorary shall be conferred at a special congregation of all members of the University to be held for the purpose at least once a year, and such persons other than members of the University as the Council may direct shall be invited to be present. The formal admission of persons to degrees shall be made by the Chancellor, or in his absence by the Vice-Chancellor. Recipients of ordinary degrees shall be presented to the Chancellor or Vice-Chancellor by the Dean of the Faculty to which the degree belongs. Each recipient of an Honorary Degree shall be presented by a member of the University specially appointed for the purpose by the Council; provided that no person shall be admitted to any degree, ordinary or honorary, until he has signed the Register of Graduates and paid the fees prescribed. No University fee shall be required of persons admitted to Honorary Degrees.

70.—Notwithstanding this ordinance, degrees may in exceptional cases, on the recommendation of the Senate, be conferred upon persons *in absentia*, by special warrant, signed by the Chancellor or the Vice-Chancellor.

71.—The Council may on the recommendation of the Senate revoke the Degree or Degrees, Diplomas, Certificates and distinctions and all privileges connected therewith of any graduate of the University who shall be convicted of felony or of any indictable misdemeanour, or whose name shall have been removed for misconduct by a properly constituted legal authority from any official register or roll of members of the profession to which

he belongs, and may restore on cause being shown any person whose degree has been revoked to the degree he previously enjoyed without further examination.

72.—Degrees may be conferred on members of the teaching staff of the University *ex-officio*.

#### AFFILIATED INSTITUTIONS.

73.—An Educational Institution of high grade in the Midland Counties may apply to be considered and approved as an affiliated institution of the University, but such approval shall only be given after evidence of efficiency satisfactory to both Senate and Council. Students of any such approved College, School, or Institution who have passed the Matriculation Examination of the University or an Examination or Examinations exempting from the Matriculation Examination, shall be permitted to attend at such College, School or Institution a course of study approved by the University as qualifying for admission to the Intermediate Examination in Science or Arts and after such attendance shall be admitted to such Examination; after passing the Intermediate Examination in Science or Arts such Students shall be admitted to the University as second-year Students, and shall be allowed to present themselves for the degrees of B.Sc. or B.A., after at least two years attendance on prescribed courses at the University.

74.—Any College, School or Institution desiring to take advantage of the following ordinance must—

- (a) Give satisfactory evidence of its educational status and that it is established on a permanent and effective footing.
- (b) Make provision for the representation of the University on the body which determines the annual curriculum in so far as it concerns the courses submitted for approval to the University.
- (c) Submit, for the approval of the Senate, courses of study extending over two years of scope and standard equal to the corresponding courses in the University.



75.—The University shall in no case grant the privileges of this ordinance to any College, School or Institution for a period extending over more than three years, but such privileges may be renewed for other similar periods after a report from the Senate.

76.—The University reserves the right of inspecting the laboratories and the equipment and apparatus provided for practical work, and of enquiring into the academic qualifications of the teacher or teachers appointed to conduct the qualifying courses.

#### ASSOCIATE MEMBERS OF THE GUILD OF GRADUATES.

77.—Persons who were Associates of Mason University College on October 1st, 1900, may be admitted as Associate Members of the Guild of Graduates, and on all ceremonial and social occasions they shall be put on the same footing as Members of the Guild, but without power of voting at Meetings of the Guild.

78.—Associates may make application to their respective Faculties on or before 1st October, 1905, for admission to the Degree of Bachelor. They will be required to submit at the same time copies of their contributions to Medicine, Science, or Literature, or a Thesis specially composed for the occasion, and an account of the appointments which they hold or have held. These papers shall be submitted to Assessors, one of whom shall be an external examiner, and in the event of a Thesis having been submitted, these Assessors shall be at liberty to question the candidate upon it, should they see fit, or to call upon him to pass any examination they may think proper. On the report of the Assessors the Faculty shall decide in each case whether they will recommend the Senate to nominate the candidate for a Degree.

79.—The fee payable by Associates who are Candidates for any degree shall be £5.



80.—Students and members of the staff of Mason University College who would have been eligible for the Associateship before 30th September, 1901, had the College continued to exist, shall be permitted to apply for admission to the above privileges before 30th September, 1901.

#### THE GUILD OF UNDERGRADUATES.

81.—The Guild of Undergraduates shall consist of all the Undergraduate Students of the University. It shall be an organised Association of such Undergraduates for the furthering of their common interests and shall be the recognised means of communication between the Undergraduates on the one hand, and the Court of Governors, Council, Senate and other authorities of the University, on the other hand.

82.—The Guild of Undergraduates may make laws for its internal management and administration, the election of its officers, the alteration of its laws and all other matters requiring regulation, but no law shall be effective until approved by the Council.

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# University of Birmingham.

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## Secretary:

GEO. H. MORLEY.

## Assistant Secretary:

FREDK. E. MOORE.

## Senate.

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Principal Sir OLIVER J. LODGE, <i>Chairman</i> .. .. .	16th June, 1900
Mariemont, Edgbaston.	
Professor R. S. HEATH, <i>Vice-Chairman and Secretary</i> , ..	21st May, 1884
Dorridge, Birmingham.	

### Faculty of Science.

Professor J. H. POYNTING .. .. .	10th Jan., 1880
10, Ampton Road, Edgbaston.	
Professor T. W. BRIDGE .. .. .	10th Jan., 1880
132, Bristol Road, Birmingham.	
Professor C. LAPWORTH .. .. .	10th May, 1881
48, Frederick Road, Edgbaston.	
Professor W. HILLHOUSE .. .. .	5th April, 1882
43, Calthorpe Road, Edgbaston.	
Professor PERCY F. FRANKLAND .. .. .	6th June, 1894
West Heath Road, Northfield.	
Professor F. W. BURSTALL .. .. .	29th July, 1896
102, Bristol Road, Birmingham.	
Professor ADRIAN J. BROWN .. .. .	3rd May, 1899
West Heath House, Northfield.	
Professor T. TURNER .. .. .	5th Mar., 1902
35, Wellington Road, Edgbaston.	
Professor R. A. S. REDMAYNE .. .. .	5th Mar., 1902
The Red Cottage, Yateley Road, Edgbaston.	

### Faculty of Arts.

Professor E. A. SONNENSCHN .. .. .	15th Nov., 1882
7, Barnsley Road, Edgbaston.	
Professor CLOVIS BÉVENOT .. .. .	9th Dec., 1889
Upland Road, Selly Park.	
Professor H. G. FIEDLER, Ph.D. .. .. .	2nd July, 1890
Lifford Grove, King's Norton.	
Professor W. MACNEILE DIXON .. .. .	6th June, 1894
43, Norman Road, Northfield.	
Professor J. H. MUIRHEAD .. .. .	29th Sept., 1897
1, York Road, Edgbaston.	
Professor J. H. B. MASTERMAN .. .. .	13th June, 1902
Queen's College, Birmingham.	

## Faculty of Medicine.

						Date of Appointment.
Professor BERTRAM C. A. WINDLE	..	..	..	..	..	3rd July, 1884
Professor GILBERT BARLING	..	..	..	..	..	24th Sept., 1885
Professor ALFRED H. CARTER	..	..	..	..	..	17th March, 1892
Professor BOSTOCK HILL	..	..	..	..	..	9th July, 1879
Professor BENNETT MAY	..	..	..	..	..	16th June, 1887
Professor R. SAUNDEY	..	..	..	..	..	5th July, 1892
Professor E. B. WHITCOMBE	..	..	..	..	..	15th March, 1888
Professor EDWARD MALINS	.	..	..	..	..	7th Nov., 1894
Professor ARTHUR FOXWELL	..	..	..	..	..	1st Dec., 1897
Professor JORDAN LLOYD	..	..	..	..	..	24th Sept., 1891
Professor PRIESTLEY SMITH	..	..	..	..	..	14th July, 1897
Professor R. F. C. LEITH	..	..	..	..	..	7th June, 1899
Professor J. T. J. MORRISON	..	..	..	..	..	7th June, 1899
Professor E. W. WACE CARLIER	..	..	..	..	..	5th July, 1899
Professor J. W. TAYLOR	..	..	..	..	..	1st Oct., 1899

## Faculty of Commerce.

Professor W. J. ASHLEY	..	..	..	..	..	31st July, 1901
3, Yateley Road, Edgbaston.						
Professor LAWRENCE R. DICKSEE	..	..	..	..	..	23rd July, 1902



## OFFICERS OF THE UNIVERSITY.

**Principal:** SIR OLIVER J. LODGE, Kt., M.Sc. ; D.Sc. (Lond., Oxon. and Vict.), LL.D. (St. Andrews and Glasgow), F.R.S.

**Vice-Principal:** Professor R. S. HEATH.

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### Deans of Faculties:

<i>Faculty of Science</i>	...	Professor J. H. POYNTING.
<i>Faculty of Arts</i>	...	Professor E. A. SONNENSCHN
<i>Faculty of Medicine</i>	...	Professor B. C. A. WINDLE.
<i>Faculty of Commerce</i>	...	Professor W. J. ASHLEY.

---

**Registrar:** Professor R. S. HEATH.

### Professors, Lecturers, and other Officers of the University:

#### Mason Chair of Mathematics.

*Professor:* R. S. HEATH, M.Sc. ; M.A. (Cantab.), D.Sc. (Lond.),  
late Fellow of Trinity College, Cambridge.

*Lecturer:* C. T. PREECE, B.A. (Cantab.), Scholar of Trinity  
College, Cambridge.

#### Mason Chair of Physics.

*Professor:* J. H. POYNTING, M.Sc. ; Sc.D. (Cantab.), F.R.S.,  
late Fellow of Trinity College, Cambridge.

*Lecturer:* GEO. E. ALLAN, B.Sc. (Lond.)

*Assistant Lecturer:* G. A. SHAKESPEAR, B.A. (Cantab.),  
B.Sc. (Lond.).

#### Mason Chair of Chemistry.

*Professor:* PERCY F. FRANKLAND, M.Sc. ; Ph.D. (Würzburg),  
B.Sc. (Lond.), F.R.S.

*Lecturer:* T. SLATER PRICE, D.Sc. (Lond.), Ph.D.

*Demonstrators:* {

#### Mason Chair of Zoology and Comparative Anatomy.

*Professor:* T. W. BRIDGE, M.Sc. ; Sc.D. (Cantab.), F.L.S.

*Lecturer and Demonstrator:* WALTER E. COLLINGE, B.Sc.,  
F.Z.S.

**Botany and Vegetable Physiology.***Professor* : W. HILLHOUSE, M.Sc. ; M.A. (Cantab.), F.L.S.*Assistant Lecturer* : A. H. R. BULLER, B.Sc. (Lond.), Ph.D.**Geology and Physiography.***Professor* : CHARLES LAPWORTH, M.Sc. ; LL.D., F.R.S., F.G.S.*Assistant Professor* : W. W. WATTS, M.Sc. ; M.A. (Cantab.),  
Sec.G.S.*Demonstrator* : FRANK RAW, B.Sc. (Lond.), F.G.S.**Chance Chair of Engineering  
(Civil, Mechanical and Electrical).***Professor* : F. W. BURSTALL, M.Sc. ; M.A. (Cantab.), M.I.C.E.,  
M.I.M.E.*Lecturer on Mechanical Engineering* : R. C. PORTER, M.Sc. (Vict.)*Lecturer on Electrical Engineering* : D. K. MORRIS, Ph.D.,  
A.I.E.E.*Assistant Lecturer* : F. H. HUMMEL, A.M.I.C.E.*Demonstrator* : C. A. SMITH.**Brewing.***Professor* : ADRIAN J. BROWN, M.Sc. ; F.I.C.*Lecturer and Demonstrator* : T. H. POPE, A.I.C.**Metallurgy.***Professor* : THOMAS TURNER, M.Sc. ; A.R.S.M.*Assistant Lecturer and Demonstrator* : (Vacant).**Mining.***Professor* : R. A. S. REDMAYNE, M.Sc. ; F.G.S.*Assistant Lecturer* :

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**Latin and Greek.***Professor* : E. A. SONNENSCHN, M.A. ; D.Litt. (Oxon).*Lecturer* : C. EXON, B.A. (Dublin).*Lecturer in Greek* : J. H. HOPKINSON, B.A., late Craven Fellow  
of the University of Oxford.**English Language and Literature.***Professor* : W. MACNEILE DIXON, M.A. ; Litt.D., LL.B. (Dub.).*Lecturer* : R. PAPE COWL, M.A. (Dub.).**French Language and Literature.***Professor* : C. BÈVENOT, M.A. ; M.A. (Oxon.).*Lecturer* : PAUL DEMEY, Lic. ès-L.**German Language and Literature.***Professor* : HERMANN GEORG FIEDLER, M.A. ; Ph.D. (Leipzig).*Lecturer* : F. E. SANDBACH, Ph.D. (Strass.), B.A. (Cantab.  
and Lond.).

**Mental and Moral Philosophy and Political Economy.***Professor* : J. H. MUIRHEAD, M.A. ; M.A. (Oxon. and Glasgow.)**History.***Professor* : J. H. B. MASTERMAN, M.A. (Cantab.).**Education.***Professor* :**Anatomy.***Professor* : B. C. A. WINDLE, M.Sc. ; M.A., M.D., D.Sc. (Dub.),  
F.R.S., F.S.A.*Lecturer* : W. WRIGHT, M.B., Ch.B. (Vict.), F.R.C.S.*Lecturer on Applied Anatomy* : W. F. HASLAM, F.R.C.S.

<i>Demonstrators</i> :	{	W. E. BENNETT, M.B., Ch.B., F.R.C.S.
		J. JAMESON EVANS, M.B., C.M. (Edin.), F.R.C.S.
		VIOLET A. P. COGHILL, M.B., Ch.B. (Edin.)

**Physiology.***Professor* : E. W. WACE CARLIER, M.Sc. ; M.D., B.Sc. (Edin.),  
F.R.S.E.*Demonstrator* : J. H. RHODES, M.B., Ch.B. (Edin.), M.R.C.S.**Medicine.***Professor* : R. SAUNDBY, M.Sc. ; M.D. (Edin.), F.R.C.P., LL.D.*Professor* : A. H. CARTER, M.Sc. ; M.D. (Lond.), F.R.C.P.*Assistant* : J. W. RUSSELL, M.A., M.D. (Cantab.), M.R.C.P.**Surgery.***Professor* : BENNETT MAY, M.Sc. ; M.B., B.S. (Lond.), F.R.C.S.*Professor* : GILBERT BARLING, M.Sc. ; M.B., B.S. (Lond.),  
F.R.C.S.*Assistant* : G. HEATON, M.A., M.B., B.Ch. (Oxon.), F.R.C.S.**Pathology and Bacteriology.***Professor* : R. F. C. LEITH, M.Sc. ; M.A., M.B. (Edin.), F.R.C.P.

<i>Assistant Lecturers in Bacteriology</i> :	{	JAMES MILLER, M.B., Ch.B., B.Sc., F.R.C.P. (Edin.).
		C. LEEDHAM-GREEN, M.B., Ch.B., F.R.C.S.

*Demonstrator in Pathology* : J. D. STANLEY, M.D. (Edin.),  
M.R.C.P.

<i>Assistant Curators of the Pathological Museum</i> :	{	J. R. CHARLES, M.A., M.D. (Cantab.)
		J. T. HEWETSON, M.D. (Edin.), F.R.C.S.
		THOMAS WILSON, M.D. (Lond.), F.R.C.S.

**Hygiene and Public Health.**

*Professor* : A. BOSTOCK HILL, M.Sc. ; M.D., D.P.H.

*Assistant* :

**Materia Medica.**

*Lecturer* : J. COOLE KNEALE, L.R.C.P., L.R.C.S. (Edin.),  
M.P.S.

*Demonstrator* : F. R. GREENWOOD, M.D. (Lond.).

**Therapeutics.**

*Professor* : A. FOXWELL, M.Sc. ; M.A., M.D. (Cantab.), F.R.C.P.

*Assistant* : W. A. POTTS, B.A. (Cantab.), M.D., C.M. (Edin.).

**Midwifery.**

*Professor* : EDWARD MALINS, M.Sc. ; M.D. (Edin.), F.R.C.P.

*Assistant* : C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

**Gynæcology.**

*Professor* : J. W. TAYLOR, M.Sc. ; M.D. (Brux.) F.R.C.S.

*Assistant* : C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

**Forensic Medicine and Toxicology.**

*Professor* : J. T. J. MORRISON, M.Sc. ; M.A., M.B., B.C. (Cantab.),  
F.R.C.S.

*Lecturer on Toxicology* : A. BOSTOCK HILL, M.Sc.

*Assistant* : R. A. LYSTER, M.B., Ch.B., D.P.H. ; B.Sc. (Lond.).

**Mental Diseases.**

*Professor* : E. B. WHITCOMBE, M.Sc., M.B., Ch.B., M.R.C.S.

**Operative Surgery.**

*Professor* : JORDAN LLOYD, M.Sc. ; M.B., M.S. (Dur.), F.R.C.S.

**Ophthalmology.**

*Professor* : PRIESTLEY SMITH, M.Sc., M.B., Ch.B., F.R.C.S.

**Dental Surgery.**

*Lecturer* : F. E. HUXLEY, M.D.S., M.R.C.S.

**Dental Anatomy and Physiology.**

*Lecturer* : JOHN HUMPHREYS, M.D.S., L.D.S.I., F.L.S.

**Dental Mechanics.**

*Lecturer* : A. E. DONAGAN, M.A. (Cantab.), L.D.S.

**Dental Histology and Pathology.**

*Lecturer* : J. D. WHITTLES, B.D.S.

**Dental Metallurgy.**

*Lecturer* : T. TURNER, M.Sc., A.R.S.M.

**Medical Diseases of the Mouth, &c.**

*Lecturer* : T. STACEY WILSON, M.D. (Edin.), M.R.C.P.

**Surgical Diseases of the Mouth, &c.**

*Lecturer* : FRANK MARSH, F.R.C.S.

**Operative Dental Surgery.**

*Lecturer* : W. T. MADIN, L.D.S.

**Commerce and Public Finance.**

*Professor* : W. J. ASHLEY, M.Com., M.A., late Fellow of Lincoln College, Oxford.

**Accounting.**

*Professor* : LAWRENCE R. DICKSEE, F.C.A.

**Emeritus Professors :**

**English.**

*Professor* : EDWARD ARBER, F.S.A.

**Engineering.**

*Professor* : ROBERT H. SMITH, M.I.M.E., Assoc. M.I.C.E.

**Forensic Medicine.**

*Professor* : J. ST. S. WILDERS, M.R.C.S.

**DAY TRAINING COLLEGE.**

*Master of Method (Men)* : FRANK ROSCOE.

*Assistant* : F. W. TOWLE.

*Head Mistress* : ANNE HOLLINGWORTH JOYCE.

*Assistants* : { FLORENCE C. M. CLARK, B.A. (Lond.).  
ADA BLANCHE TAYLOR.  
ANNIE E. WARMINGTON, B.A. (Lond.).  
EDITH U. SOWERBUTTS, B.Sc. (Vict.).

**Secretary :**

GEO. H. MORLEY.

**Assistant Secretary :**

FREDK. E. MOORE.

**Librarian :**

WILLIAM H. COPE.

**Clerk to the Dean of the Faculty of Medicine :**

EDWARD B. LAWLEY.

## UNIVERSITY EXAMINERS FOR DEGREES.

*Mathematics—*

HORACE LAMB, M.A., LL.D., F.R.S.,  
 Professor of Mathematics at Owen's College, Manchester.  
 Professor R. S. HEATH.

*Physics—*

J. J. THOMSON, M.A., D.Sc., F.R.S.,  
 Cavendish Professor of Physics in the University of  
 Cambridge.  
 Professor J. H. POYNTING.

*Chemistry—*

HERBERT MCLEOD, F.R.S.  
 Professor PERCY F. FRANKLAND.

*Zoology—*

S. F. HARMER, D.Sc., F.R.S.,  
 Superintendent of the Zoological Museum of the  
 University of Cambridge.  
 Professor T. W. BRIDGE.

*Botany—*

J. REYNOLDS GREEN, D.Sc., F.R.S.,  
 Lecturer in Botany in the University of Cambridge.  
 Professor W. HILLHOUSE.

*Geology—*

Rev. T. G. BONNEY, Sc.D., F.R.S.,  
 Professor of Geology in University College, London.  
 Professor C. LAPWORTH.

*Engineering—*

H. S. HELE-SHAW, LL.D., F.R.S.,  
 Professor of Engineering in University College,  
 Liverpool.  
 Professor BURSTALL.

*Classics—*

T. H. WARREN, M.A.,  
 President of Magdalen College, Oxford.  
 Professor E. A. SONNENSCHNEIN.

*English—*

A. C. BRADLEY, M.A., LL.D.,  
 Professor of Poetry in the University of Oxford.  
 Professor W. MACNEILE DIXON.



*French—*

VICTOR SPIERS, M.A.,  
 Professor of French in King's College, London.  
 Professor CLOVIS BÉVENOT.

*German—*

KARL BREUL, M.A., Ph.D., Litt.D.,  
 Reader in Germanic in the University of Cambridge.  
 Professor H. G. FIEDLER.

*Philosophy—*

G. F. STOUT, M.A., LL.D.,  
 Wilde Reader in Mental Philosophy in the University  
 of Oxford.  
 Professor J. H. MUIRHEAD.

*Education—*

W. H. WOODWARD, M.A.,  
 Professor of Education in University College, Liverpool.  
 FRANK ROSCOE.  
 ANNE HOLLINGWORTH JOYCE.

*Anatomy—*

ALEXANDER MACALISTER, M.D., F.R.S.,  
 Professor of Anatomy in the University of Cambridge.  
 Professor B. C. A. WINDLE.

*Physiology—*

JOHN GREY MCKENDRICK, M.D., F.R.S.,  
 Professor of Physiology in the University of Glasgow.  
 Professor E. WACE CARLIER.

*Medicine—*

DONALD MACALISTER, M.D., F.R.C.P.,  
 Lecturer on Medicine in the University of Cambridge.  
 Professor R. SAUNDBY.  
 Professor A. H. CARTER.

(*Clinical*) T. STACEY WILSON, M.D., M.R.C.P.

*Surgery—*

THOMAS BRYANT, F.R.C.S.,  
 Consulting Surgeon to Guy's Hospital, London.  
 Professor BENNETT MAY.  
 Professor GILBERT BARLING.

(*Operative*) Professor JORDAN LLOYD.

(*Clinical*) W. F. HASLAM, F.R.C.S.

*Ophthalmology—*

Professor PRIESTLEY SMITH.

*Mental Diseases—*

Professor E. B. WHITCOMBE.

*Pathology—*

G. SIMS WOODHEAD, M.D.,  
Professor of Pathology in the University of Cambridge.  
Professor R. F. C. LEITH.

*Public Health—*

GEORGE REID, M.D., D.P.H.,  
Medical Officer of Health for the County of Stafford.  
Professor A. BOSTOCK HILL.

*Materia Medica and Practical Pharmacy—*

JOHN BARCLAY, B.Sc. (Lond.).  
J. COOLE KNEALE, L.R.C.P., L.R.C.S. (Edin.), M.P.S.

*Therapeutics and Pharmacology—*

DONALD MACALISTER, M.D., F.R.C.P.  
Lecturer on Medicine in the University of Cambridge.  
Professor A. FOXWELL.

*Midwifery and Gynaecology—*

D. BERRY HART, M.D., F.R.C.P.,  
President of the Obstetrical Society of Edinburgh.  
Professor EDWARD MALINS.  
Professor J. W. TAYLOR.

*Forensic Medicine and Toxicology—*

T. STEVENSON, M.D., F.R.C.P.,  
Lecturer on Medical Jurisprudence and Toxicology in  
Guy's Hospital, London.  
Professor J. T. J. MORRISON.  
Professor A. BOSTOCK HILL.

*Dental Subjects—*

CHARLES S. TOMES, L.D.S., F.R.C.S., F.R.S.,  
Surgeon at the London Dental Hospital.  
Professor R. F. C. LEITH.  
JOHN HUMPHREYS, M.D.S., F.L.S.  
F. E. HUXLEY, M.R.C.S., M.D.S.  
A. E. DONAGAN, M.A., L.D.S.  
J. D. WHITTLES, B.D.S.  
W. T. MADIN, L.D.S.  
F. MARSH, F.R.C.S.  
T. STACEY WILSON, M.D.

*Brewing—*

FRANK WILSON.  
Professor ADRIAN J. BROWN.

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## REPRESENTATIVES OF THE UNIVERSITY

### ON SCHOOLS AND OTHER INSTITUTIONS.

ARTHUR OLIVER HOLBECHE, Esq., L.R.C.P., *Hanley Castle Grammar School.*

Professor T. TURNER, *Kinver Grammar School.*

FRANCIS ELLIOTT KITCHENER, Esq., M.A., *King Edward's School, Stafford.*

Rev. J. F. HUXLEY BLAKE, M.A., B.Sc., *Tamworth Grammar School.*

LAURENCE W. HODSON, Esq., *Wolverhampton Grammar School.*

Professor E. A. SONNENSCHIEIN, *Lichfield Grammar School.*

Mr. Councillor A. J. REYNOLDS, *Jackson's Charity.*

W. WRIGHT WILSON, Esq., F.R.C.S., Edin., *Yardley Charity Estates.*

Professor W. W. WATTS, *Sutton Coldfield Grammar School.*

Dr. T. WEBB FOWLER, *Coventry Grammar School.*

ARTHUR L. CHANCE, Esq., *Newport's School, Alcester.*

Professor BOSTOCK HILL, and Professor J. H. MUIRHEAD, *Handsworth Grammar School.*

Sir JOHN C. HOLDER, Bart., and Mr. Councillor A. J. REYNOLDS, *Birmingham Blue Coat School.*

Rev. JAMES WENT, M.A., *Lutterworth Endowed Schools.*

Principal Sir OLIVER LODGE, *King Edward the Sixth's School, Birmingham.*

Professor T. TURNER, *Brewood Grammar School.*

ROWLAND HILL, Esq., M.A., LL.D., *Stourbridge Grammar School.*

ROWLAND HILL, Esq., M.A., LL.D., *Halesowen Grammar School.*

G. W. GROSVENOR, Esq., J.P., *Seabright's Endowed Schools, Wolverley.*

G. W. GROSVENOR, Esq., J.P., *Hartlebury Grammar School.*

ALFRED BALDWIN, Esq., M.P., *Bewdley Grammar School.*

Dr. R. M. SIMON, *Coleshill Grammar School.*

Professor W. HILLHOUSE, *Hinckley Grammar School.*

Professor T. W. BRIDGE, *Atherstone Grammar School.*

Professor C. LAPWORTH, *Dudley Grammar School.*

JOHN BRINTON, Esq., *Kidderminster Grammar School.*

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Professor B. C. A. WINDLE, *General Medical Council.*

## ACADEMIC COSTUME.

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### GOWNS.

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*Undergraduates.*—Gown of black stuff, similar to the Oxford Scholars' Gown, with the fore-arm seam open.

*Bachelors.*—Gown of black stuff with an open sleeve.

*Masters.*—Gown of black stuff or silk, similar to a Cambridge M.A. Gown with ribbons, but with a ┐-shaped slit in the sleeve.

*Doctors.*—Robe of scarlet cloth of the same shape as the Cambridge Doctors' Gown, trimmed with silk of the colour characteristic of the Faculty.

*Doctors' Undress.*—Gown of black stuff or silk of the same shape as the Masters' Gown, but edged with braid.

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### HOODS.

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#### FACULTY OF SCIENCE.

*B.Sc.*—Black silk or stuff edged with silver-grey watered silk.

*M.Sc.*—Black silk lined with silver-grey watered silk.

*D.Sc.*—Scarlet cloth lined with silver-grey watered silk.

#### FACULTY OF ARTS.

*B.A.*—Black silk or stuff edged with electric-blue watered silk.

*M.A.*—Black silk lined with electric-blue watered silk.

*D.Phil. and D.Litt.*—Scarlet cloth lined with electric-blue watered silk.

## FACULTY OF MEDICINE.

*M.B. and Ch.B.*—Black silk or stuff edged with cardinal watered silk.

*Ch.M.*—Black silk lined with cardinal watered silk.

*M.D.*—Scarlet cloth lined with cardinal watered silk.

## DEPARTMENT OF DENTISTRY.

*B.D.S.*—Black silk or stuff edged with dark red (Grenat) watered silk.

*M.D.S.*—Black silk lined with dark red (Grenat) watered silk.

## FACULTY OF COMMERCE.

*B.Com*—Black silk or stuff edged with terra-cotta watered silk.

*M.Com.*—Black silk lined with terra-cotta watered silk.

## HONORARY DEGREE.

*LL.D.*—Scarlet cloth lined with bronze-green watered silk.

## CAPS.

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Undergraduates, Masters, and Doctors will wear the ordinary square College Cap, and Doctors in full dress will wear a cap of black velvet with a gold cord, lined with the colour characteristic of the Faculty.

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*Robe-Makers to the University :—*

MESSRS. EDE, SON, & RAVENSCROFT, 93 AND 94, CHANCERY LANE, LONDON.

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# UNIVERSITY OF BIRMINGHAM.

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**SESSION 1902-1903.**

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**FACULTIES OF SCIENCE AND ARTS.**

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## **UNIVERSITY TERMS.**

The University Session, or academic year, is divided into three terms—Winter, Spring, and Summer. The WINTER TERM commences Wednesday, October 1st, and ends Saturday, December 20th, 1902; the SPRING TERM commences Tuesday, January 13th, 1903, and ends Saturday, March 28th, 1903; the SUMMER TERM commences Tuesday, April 21st, and ends Saturday, June 27th.

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## **ADMISSION OF STUDENTS.**

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1.—All the courses of study are open to men and women on the same terms. Separate cloak rooms and reading rooms in the east wing (ground floor) are reserved for the accommodation of women students.

2.—The classes and laboratories of the University are open to all who are sufficiently prepared to take advantage of the instruction offered. Every person seeking admission as a student to a recognised course of instruction in preparation for a diploma, certificate, or other professional qualification must produce such testimonial or reference and pass such examination as shall be deemed necessary by the Vice-Principal; but no examination is as a rule deemed necessary in the case of students attending classes for the purposes of general culture, and not in preparation for any University Examination.



3.—Students on admission are required to sign a declaration that they will observe the Ordinances of the University and conform to such regulations as have been or may be made for the maintenance of order in the University and in the classes they attend.

4.—The Vice-Principal, the Deans of the Faculties and the Professors will be present on Tuesday, September 30th, from ten o'clock a.m. to one o'clock p.m. to confer with intending students and give them advice respecting their courses of study, and may be seen at other times by appointment.

5.—Application for admission to classes must be made either in writing or personally to the Secretary of the University. The Secretary's office is open from 9 to 1 and from 2 to 5, except on Saturdays, when it is open from 9 to 1 only.

6.—All Fees are to be paid in advance (*i.e.*, at the beginning of the Session or Term on account of which they are due) at the Secretary's Office in the University. Cheques should be drawn in favour of Mr. Geo. H. Morley. *Students should not enter for classes until after mature consideration, as fees once paid cannot be returned.*

7.—Within the first week of attendance at any class, each student is required to present to the Professor either a ticket for that class, or a written statement from the Vice-Principal showing the reason why delay in taking out such ticket has been allowed.

8.—Students intending to take lodgings in Birmingham or the vicinity are recommended to place themselves in communication with the Secretary.

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## UNDERGRADUATES.

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Although the classes in the University are open to all students who may wish to join them, only students who have been matriculated are eligible to become candidates

for degrees in the University. Students who have been matriculated are entitled to the privileges of membership of the University and of the Guild of Undergraduates, so long as they are in actual attendance on a course of study approved by a Faculty of the University. Undergraduates are required to wear academic dress when in attendance upon University lectures and examinations, when calling upon the officers of the University, and upon all official occasions. Students who are not Undergraduates are not entitled to wear academic dress.

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### FEES.

The Fee for each course of study is appended to the Syllabus of the course.

Students are required to pay a Membership Fee, which includes all charges for Registration, and for the use of the Library and Common Rooms.

The following statement shows the Membership Fees for a Session or a Term :—

				<i>Session.</i>			<i>Term.</i>		
				£	s.	d.	£	s.	d.
Students attending in <i>two</i> or	...	...	...	1	1	0	...	0	10 6
more Subjects									
Students attending in <i>one</i>	...	...	...	0	10	6	...	0	5 0
Subject									

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### REGULATIONS TO BE OBSERVED BY ALL STUDENTS.

1.—Students are not permitted to be in the University buildings before 8.45 a.m., nor after 6 p.m., unless attending classes or the meetings of some Society of the University.

2.—All students are required to conduct themselves in a quiet and orderly manner whilst in the University, not only during lecture hours, but on entering and leaving the building.

3.—Smoking is prohibited in the corridors and front hall of the University buildings.

4.—Card playing is prohibited in all parts of the buildings.

5.—Students committing any damage to the University building, or University property, will be required to pay for making good the same, and may be excluded from the University till payment is made.

6.—Students are required to attend punctually and regularly at the lectures and classes for which their names are entered.

7.—When a student has been absent it is desirable that he should report the cause of his absence to the Professor on his return to the class. In the event of illness or unavoidable absence notice should be sent by the absentee to the Dean of his Faculty as soon as convenient.

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### LIBRARY REGULATIONS.

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1.—The Library is open daily during the Session from 9 a.m. to 6 p.m., except on Saturdays when it is closed at 1 p.m. It is closed at 5 p.m. during the vacations. It is also closed during part of the long vacation for cleaning purposes.

2.—The Library being set apart expressly for study, *all conversation is strictly prohibited*. Students are required to sit at the tables, and are not permitted to stand about in any part of the Library.

3.—Students are permitted to take books from the shelves, but they are to be *returned to the Librarian* and are not to be re-placed upon the shelves by the readers.

4.—The Library is to be used by *present day students, for reference and study only*, and no books, pamphlets or journals, &c., are to be taken from it, except by members of the Teaching Staff.

5.—Certain valuable books of reference (including Dictionaries and Encyclopædias) as indicated by the Council, are not allowed to be taken from the Library. Current Journals, Transactions of Societies, &c., are not allowed to be taken from the Library until after the publication of a succeeding part.

6.—In the event of a book being damaged by scribbling, tearing, &c., the person damaging it will be required to supply another copy in its place to the satisfaction of the Council. Any defect in a printed book should be pointed out to the Librarian.

7.—Books borrowed from the Library must be returned to the Librarian before the expiration of 15 days, subject to a renewal for a further period of 15 days, unless required by another reader.

8.—All books, pamphlets, &c., in the hands of borrowers must be returned to the Librarian on or before the last day of the Session.

9.—The Librarian is authorised to exclude temporarily any person infringing the regulations of the Library.

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### LOCKERS FOR BOOKS, &c.

Lockers are provided in the locker room (first floor), and in the hat and coat room of the Medical School to enable students to preserve their books and papers in safety, at a charge of one shilling per Term, or two shillings and sixpence per Session. Each student will be supplied with a key, upon which a deposit of one shilling will be charged. The key must be delivered up on or before the last day of the Term or Session for which payment has been made, or the deposit will be forfeited.

A master-key of all the lockers is kept in the office.

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## \*REGULATIONS FOR THE MATRICULATION EXAMINATION.

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There will be two Matriculation Examinations in the year 1903, commencing on Tuesday, June 2nd, and Monday, September 14th, respectively. Candidates for these examinations must apply to the Registrar for a form of entry, which must be returned on or before May 11th or September 1st respectively, accompanied by a certificate of good character from the last school attended or from some responsible person, and by the proper fee.

The Fee for the Matriculation Examination is £2; and in cases of failure or withdrawal from the examination, for each subsequent Examination £1.

The examination will be conducted partly by means of printed papers, partly by means of a *viva voce* examination.

Every candidate must pass in five subjects before he is allowed the next University examination, viz. :—

- (1) English Language, Literature, and History.
- (2) and (3) Any two Languages out of the following :—Latin, Greek, French, German, Italian, and Spanish.
- (4) Mathematics.
- (5) One Science subject chosen from the following :—  
Mechanics, Chemistry, Physiography, Botany.  
Animal Biology.

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\* For the special requirements of the several Faculties see pp. 129-130.



The particulars of the foregoing subjects of examination in June and September, 1903, are set out in the following schedule. The books to be prepared in English, Latin, Greek, French, German, Italian, and Spanish are left to the choice of candidates, subject to the approval of the University, but they should be of about the same length and standard of difficulty as the books suggested under the various headings below.

# 1. English Language, Literature and History.

A. (i.) Grammar, including analysis of sentences and the simple elements of the history of the English language.

(ii.) Composition, including an essay or other test of the candidate's powers of expression.

## B. *Either*

(i.) Outlines of English History to 1815, with elementary questions on the lives and works of the following authors :—Chaucer, Wyclif, Shakspeare, Bacon, Milton, Dryden, Locke, Addison, Pope, Swift, Johnson and Burke ;

*or*

(ii) The History and Literature of the period 1399 to 1600.

C. A play of Shakspeare to be selected by the candidate.

# 2. (a) Latin and Greek.

(i.) Translation of easy passages at sight, with questions on Grammar (Accidence and Syntax).

(ii.) Easy Composition.

(iii.) A *viva voce* examination on the prepared work, including the reading aloud of passages with due regard to quantities and expression.

For prepared work the following books (or books of similar length and standard of difficulty) may be offered in June and September, 1903 :—

Latin : Cicero, *de Senectute*.

Greek : Euripides, *Medea*.



(b) **French.**

- (i.) Translation of easy passages at sight, with questions on Grammar (Accidence and elementary Syntax).
- (ii.) Easy Composition and Dictation.
- (iii.) A *viva voce* examination on the prepared book, including the reading aloud and translation of selected passages, and easy conversation based on them.

For prepared work one of the following books (or any other book of similar length and standard of difficulty) may be offered in June and September, 1903 :—

A. Daudet, *Le Petit Chose en Province* (Hachette).

L. Halévy, *L' Abbé Constantin* (Hachette).

(c) **German.**

- (i.) Translation of easy passages at sight, with questions on Grammar (Accidence and elementary Syntax).
- (ii.) Easy Composition and Dictation.
- (iii.) *Viva voce*. Reading aloud and translation of passages from the prepared book, and easy conversation based on them

For prepared work one of the following books (or any other book of similar length and standard of difficulty) may be offered in June and September, 1903 :—

Th. Ebner, *Herr Walther von der Vogelweide* (Macmillan & Co.).

P. Heyse, *L' Arrabiata* (Heath & Co.).

(d) **Italian.**

- (i.) Translation of easy passages at sight, with questions on Grammar (Accidence and Elementary Syntax).
- (ii.) Easy Composition and Dictation.
- (iii.) *Viva voce*. Reading aloud and translation of passages from the prepared book, and easy conversation based on them.

For prepared work one of the following books (or any other approved book of similar length and standard of difficulty) may be offered in June and September, 1903.

Bersezio. *Il Cane del Cieco* (Richter, Davos).

Pellico. *Le Mie Prigioni*.

(e) **Spanish.**

(i.) Translation of easy passages at sight, with questions on Grammar (Accidence and Elementary Syntax).

(ii.) Easy Composition and Dictation.

(iii.) *Viva voce*. Reading aloud and translation of passages from the prepared book, and easy conversation based on them.

For prepared work the following book (or any other approved book of similar length and standard of difficulty) may be offered in June and September, 1903.

Cervantes. *The Adventure of the Wooden Horse and Sancho Panza, Governor of Barataria* (Clarendon Press).

**3. Mathematics.**

*Arithmetic*. The ordinary rules, vulgar and decimal fractions, methods of manipulation of decimals in approximations, square root, proportion, interest, discount, stocks.

*Algebra*. The ordinary rules, factors, fractions, simple equations in one or more unknown quantities, quadratic equations and problems.

*Geometry*. The substance of Euclid, Books I—IV, with Exercises.

In Geometry any valid proof will be accepted provided it does not violate the order of the propositions of Euclid.

**4. (a) Mechanics.**

*Statics*. Force measured in pounds weight or grammes weight. Equilibrium under two equal and opposite forces. Equality of the action

and reaction between two bodies. Transmissibility of force by strings, ropes, and rigid connexions. Experimental investigation of the conditions for the equilibrium of a body when acted on by three parallel forces. Resultant. Moment of a force about a point. Balancing of moments when a body is in equilibrium. Centre of parallel forces. Centre of gravity and the experimental investigation of its position. Stability and instability of a body, supported from a point or on a base. Work and rate of working. Foot pound and horse power. The lever, the balance, the single string system of pulleys, the wheel and axle, the differential pulley, as illustrations of parallel forces, and of the principle of work. Experimental investigation of the conditions for the equilibrium of a body when acted on by three forces not parallel. The triangle of forces. The parallelogram of forces. Graphic resolution and composition of forces. Simple cases of resultant of two forces acting at a point. Balancing of moments when a body is in equilibrium. Inclined plane. Windmill. Sailing. Screw, toothed and worm wheels, as treated by the principle of work. Efficiency of machines always reduced by friction.

*Hydrostatics.* Distinction between liquids and gases. Pressure at a point in a fluid. Equality of pressure at points on the same level. Change of pressure with depth. Surface of a liquid level. Transmission of pressure in liquid. Hydraulic press. Pressure against horizontal surfaces and vertical containing walls. Archimedes' principle. Density and specific gravity. Methods of finding specific gravities. Relation between volume and pressure in a gas. Air pumps. Atmospheric pressure. Barometers. Common pumps. Force pump.

*Dynamics.* Units of length and time. Velocity. Uniform acceleration. Use of formulæ connecting velocity, time and distance travelled, with acceleration. Mass. Equal masses are those having equal acceleration under equal forces. Simple experiments to show that mass is proportional to weight at the same place. Constancy of mass under change of physical and chemical condition. Momentum and rate of change of momentum. Force measured by rate of change of momentum. Dyne and poundal. Momentum measure of force proportional to its weight measure. Relation between weight measure and momentum measure. *g*. Atwood's machine. Momenta generated in two bodies by their mutual action, equal and opposite. Constancy of momentum. Kinetic energy and Work.

(b) **Chemistry.**

Gaseous, liquid, and solid states of matter.

Nature of chemical change. Elements, compounds, and mixtures.

Types of chemical action.

Solution, crystallisation, distillation, diffusion.

Chemical and physical properties of air and water.

Nature of acids, bases, and salts.

Nature, occurrence, chief modes of preparation, and principal properties of the following non-metallic elements and their more important compounds: Hydrogen, Oxygen, Carbon, Silicon, Sulphur, Nitrogen, Phosphorus, Fluorine, Chlorine, Bromine, and Iodine.

Combination by weight and volume. Symbols, equations, and calculations relating to weight and volume. Nomenclature.

Chemical and Physical characteristics of metals as illustrated by Sodium, Calcium, Iron, Zinc, Lead, Mercury, Copper, and Silver.

Candidates are required to show knowledge of a concrete and experimental character throughout.

(c) **Physiography.**

*The Earth* in its relation to the other bodies in the Solar System ; the form and size of the Globe ; its movements and their effects in day and night, the seasons, eclipses.

*The Surface of the Earth.* General distribution of land and water ; the contour, relief and chief features of the continental land areas.

*The Atmosphere.* Its composition and density ; the determination, distribution and representation of its temperature, and pressure ; the circulation of the air, permanent and periodic winds storms ; the moisture of the air, dew, hoarfrost, fog, mist, clouds, rain, snow and hail ; general distribution of rain-fall and its causes ; weather-charts, and storm warnings, climate.

*The Sea.* Composition, specific gravity and temperature of sea-water ; depths of the ocean, form and deposits of its floor ; movements of the ocean water ; waves, tides and currents.

*The Land.* The chief constituents of the earth-crust, stratified and unstratified rocks ; the work of rain, frost, rivers and ice ; springs, glaciers, valleys, waterfalls, lakes, meadows, deltas ; earth-movement and earthquakes ; volcanoes, their phenomena and distribution.

*Life.* The geographical distribution of animals and plants ; biological regions.



(d) Botany.

A. *Plant Form as a key to Relationships.*

The Candidate is expected to have *practical* familiarity with

- (1) The chief characters of root, stem, bud, and leaf of the principal British plants of quite general distribution and of garden plants of general cultivation, and with the nature and structure, as determinable by eye or lens, of common bulbs, fruits, seeds, or other vegetable products in ordinary use, and universally met with in shop or market.
- (2) The most important floral and fruiting characters of the following British Natural Orders:—Ranunculaceæ, Cruciferæ, Violaceæ, Caryophyllaceæ, Leguminosæ, Rosaceæ, Umbelliferæ, Compositæ, Primulaceæ, Scrophularineæ, Labiata, Cupuliferæ, Liliaceæ.
- (3) To be able to describe concisely and in systematic fashion, flowering or fruiting specimens taken from (1) or (2) as above, the various parts being known by their technical names, but otherwise more importance being attached to accuracy of observation than to the memory of technical terms.

B. *How Plants live, grow, and reproduce.*

- (4) The mode of development of the plant, the elementary facts of nutrition and respiration, the nature and function of root, stem and leaf, and their relations with external conditions and forces, to be determined *experimentally*, by the aid of seedlings grown in the class-room from the following typical seeds or one-seeded fruits, viz., castor-oil *or* buck wheat, pea *or* bean, sunflower, mustard *or* cress, and maize, wheat *or* barley, and the bulb of hyacinth *or* onion.



- (5) The functions of the floral parts, their relations with pollination, the production and protection of seeds, and the provisions for seed-dispersal, especially as illustrated in the Natural Orders named above.

(e) **Animal Biology.**

- (a) Distinctive properties of living matter or protoplasm, as illustrated by the structure and mode of life of the *Proteus*-animalcule or *Amæba*. Differences between Animals and Plants. The nature of the Cell.
- (b) The general structure of the Frog. Elementary physiology of the Frog. The organs of digestion and their use. The nature of blood. The structure of the heart, and the arrangement of the more important blood vessels. The use of a circulatory system. The nature of excretory organs. Mode of breathing. The kidneys and their use.
- (c) The more important facts in the structure and habits of the freshwater Polype (*Hydra*); the Earthworm (*Lumbricus*); and the Crayfish (*Astacus*).
- (d) Methods of reproduction in animals. The egg-cell and the sperm-cell. Fertilization of the egg. Segmentation of the fertilized egg. The metamorphosis of the Frog, treated in an elementary fashion.
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A list of candidates who have passed the Examination will be published, arranged in two divisions, in each of which the names will be placed in alphabetical order.

A pass-certificate signed by the Registrar will be given to each successful candidate after the list is published.

Unsuccessful candidates will be informed of the subjects in which they have failed on application to the Registrar after the publication of the list.

**ENTRANCE EXHIBITIONS.**

Two Entrance Exhibitions, not exceeding in value the sum of £25 each, will be awarded on the results of the Matriculation Examination in June 1903, provided that a proper standard is reached by the candidates. Candidates for the Exhibitions must be under the age of nineteen years on the first day of the examination. The Exhibitions will be tenable at the University during the Session immediately following the Examination, and will be paid solely in the form of remission of class fees.

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**THEODORE MANDER SCHOLARSHIP.**

A fund raised by private subscription organised by the Citizens of Wolverhampton to establish a memorial of the late Mr. Samuel Theodore Mander, Mayor of Wolverhampton, has been devoted to the foundation of a Theodore Mander Scholarship. The Scholarship of the value of about £24 per annum is open to sons and daughters of burgesses of Wolverhampton, and is tenable at the University of Birmingham. The Scholarship is awarded upon the results of the June Matriculation Examination, and preference will be given to candidates desirous of attending courses in connexion with or preparatory to Degrees in Science or Commerce. Forms of entry may be obtained from the Registrar of the University, and should be received duly filled up on or before May 12th.

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**POLYTECHNIC BURSARIES.**

See p. 298.

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**ANNIE DEAKIN PRIZE.**

The "Annie Deakin Prize" founded in memory of the late Miss Annie Deakin, of Handsworth, by friends and former pupils of her School, of the value of about £1 5s. is awarded annually to the woman who passes the June Matriculation Examination with the highest distinction among those candidates who declare their intention of becoming teachers in Secondary Schools.

### RECOGNITION OF THE MATRICULATION EXAMINATION BY OTHER INSTITUTIONS.

List of Institutions which recognise the Matriculation Examination of the University of Birmingham in lieu of their own preliminary examination :—

Incorporated Law Society (provided that Latin is one of the subjects of examination).

Institute of Chartered Accountants.

Board of Education, for admission to Training Colleges.

General Medical Council, for Registration of Medical and Dental Students.

Institute of Chemistry.

### REGULATIONS FOR MATRICULATION.

Matriculation is the formal admission of a student to membership of the University.

Students may be matriculated in any Faculty provided that they have passed the Matriculation Examination of the University, or can produce evidence that they have passed one of the Examinations which the University accepts as exempting from the Matriculation Examination. A schedule of such examinations is appended. Persons desiring to be matriculated by virtue of any other examination than the Matriculation Examination of the University are required to pay a fee of £1.

A student may be matriculated in the Faculty of Science who has passed the Matriculation Examination in the *four* following subjects, viz: (i.) English Language, Literature, and History; (ii.) Mathematics; (iii.) a Science, and (iv.) one foreign language; but he will not be allowed the next University Examination until he has passed in the fifth subject.

A student may be matriculated in the Faculty of Arts who has passed the Matriculation Examination in the *four* following subjects, viz.: (i.) English Language, Literature, and History; (ii.) Latin; (iii.) one other foreign

language; (iv.) either Mathematics or a Science; but he will not be allowed the next University Examination until he has passed in the fifth subject.

A student may be matriculated in the Faculty of Medicine who has passed the Matriculation Examination in the *four* following subjects, viz.: (i.) English Language, Literature, and History; (ii.) Latin; (iii.) one other foreign language; (iv.) Mathematics.

A student may be matriculated in the Faculty of Commerce who has passed the Matriculation Examination in the four following subjects, viz.: (i.) English Language, Literature and History; (ii.) Mathematics; (iii.) one of the prescribed Languages; and (iv.) *either* one of the prescribed Sciences (Mechanics, Chemistry, Physiography) *or* another Language; but he will not be allowed the next University Examination until he has passed in the fifth subject.

The fee for examination or re-examination in the fifth subject is 10s.

### SCHEDULE OF EXAMINATIONS

*accepted in lieu of the Matriculation Examination.*

1. The Previous Examination of the University of Cambridge.
2. Responsions of the University of Oxford.
3. The Preliminary or Matriculation Examination of any recognised University.
4. The Higher Certificate of the Oxford and Cambridge Examinations Board.
5. The Oxford or Cambridge Senior Local Examination.
6. The Oxford or Cambridge Junior Local Examination with First or Second Class Honours, or with Distinctions in two subjects, which may be either languages or mathematics.

Provided that Candidates who offer Examinations 4, 5 and 6 have passed in all the subjects required by the Regulations for matriculation in a Faculty at one examination.

In the Faculty of Medicine, the College of Preceptors Examination for First Class Certificates, as well as all the examinations in the foregoing list are accepted as qualifying for matriculation, provided that such examination shall have included the subjects of English, Latin, Mathematics, and one of the following: Greek, French, German or any other modern foreign language, and that the candidate have passed in all these subjects at one examination.

In the Faculties of Science, Arts and Commerce the Oxford and Cambridge Higher Local Examinations in any subject will exempt candidates from further examination in that subject in the Matriculation Examination. A written statement from the Secretary of the Oxford Delegacy or the Cambridge Syndicate certifying that the candidate has passed the examination in that subject must be presented.

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# FACULTY OF SCIENCE.

## REGULATIONS FOR DEGREES IN THE FACULTY OF SCIENCE.

No degree can be obtained without attendance upon certain prescribed courses of study in the University, extending over a period of at least three years after matriculation, and no attendance upon lectures in the University prior to matriculation will be accepted as any part of the qualification necessary for a degree. Before entering for an examination of the University, each undergraduate is required to present a certificate of qualification, stating that he has attended to the satisfaction of the Professors concerned not less than two-thirds of the lectures and practical classes, and that he has passed such class examinations and performed such other exercises as his teachers may prescribe in connexion with their own courses, to the satisfaction of the Faculty.

Candidates who have failed in any of the subjects offered for examination may be required by the Faculty to attend a further course in that subject before sitting for a subsequent examination.

### B.Sc. Degree.

Candidates for this degree are required to pass two University Examinations, the *Intermediate* and the *Final*.

#### INTERMEDIATE EXAMINATION.

Candidates for the Intermediate Examination are required to have attended University Courses of study for at least one academic year after matriculation in four of the following subjects:—

- (i.) Pure Mathematics.
- (ii.) Physics.
- (iii.) Chemistry.
- (iv.) Elementary Biology.
- (v.) Theory and Practice of Education.



Two printed examination papers will be set in each of the five subjects of examination, and there will be a practical examination in Physics, Chemistry, and Elementary Biology. Examiners will not be precluded from holding a *viva voce* examination in any subject if they think fit.

Candidates who pass in two or more subjects will be allowed to offer themselves for the remaining subjects at any subsequent examination.

#### FINAL EXAMINATION.

Candidates for the Final Examination are required to have spent at least three academic years in attendance on courses of study in the University after matriculation in the Faculty, and are also required to pass the papers in French and German set at a Matriculation Examination either at entrance or at a subsequent examination, before being admitted to the degree. All such candidates are required to take University Courses in one principal subject and two subsidiary subjects under the following groups:—

*Principal Subjects*:—Mathematics (Pure and Applied), Physics, Chemistry, Geology, Zoology, Botany, Physiology, Anatomy and Anthropology, Psychology.

*Subsidiary Subjects*:—Pure Mathematics, Applied Mathematics, Elementary Pure Mathematics together with Elementary Applied Mathematics, Chemistry, Geology, Botany, Zoology, Physiology, Psychology Theory and Practice of Education.

*Double Subsidiary Subjects* (each counting as two):—Physics, Chemistry, Geology, Botany, Zoology, Physiology, Anatomy and Anthropology, Psychology.

The principal subjects must be studied for two years, while subsidiary subjects need in general only be studied for one year; but Subsidiary Mathematics extends over two years. By the selection of a double subsidiary subject, a student is enabled to continue the study of a subsidiary subject for a second year, instead of choosing a fresh subsidiary subject. The examination in principal subjects

will be of a higher standard and will cover a wider range than the examination in subsidiary subjects.

The examination in subsidiary subjects may be taken at the conclusion of the courses.

The examination will be conducted by printed papers and also by tests of practical work : but the Examiners will not be precluded from holding a *viva voce* examination in any subject, if they think it desirable.

The B.Sc. class lists will be published in three divisions, the first of which will be called Honours, and will contain the names of those candidates who distinguish themselves in their principal subject.

#### M.Sc. Degree.

Bachelors of Science may be admitted to the degree of Master of Science after a further course of study extending over not less than one academic year.\* Candidates are required either—

- (i.) To present a thesis and, if the Examiners think it desirable, to pass a *viva voce* examination ;  
or—
- (ii.) To pass an examination, both written and practical.

#### D.Sc. Degree.

Candidates may be admitted to the degree of Doctor of Science, after the expiration of at least two academic years after qualifying for the B.Sc. degree, on the presentation and approval of a printed and published thesis embodying the results of original research, or contributing generally to the advancement of Science.

#### B.Sc. Degree in Engineering.

Candidates may obtain the Degree of Bachelor of Science in any of the three branches of Engineering, viz. :  
(a) Civil Engineering, (b) Mechanical Engineering, (c)

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\* In ordinary cases, the year of study must be spent at the University of Birmingham ; but candidates desirous of pursuing some special line of study at some other place may receive permission to do so on the recommendation of the Faculty.

Electrical Engineering, after attendance on prescribed courses of study in the University extending over a period of at least four years after matriculation.

The prescribed courses for the first two years are the same for all candidates. At the end of each Session there will be a University Examination on the prescribed courses of study, which candidates are required to pass. In the examinations at the end of the first and second years of study, candidates who pass in two subjects will be allowed to offer the third subject at a subsequent examination; but no candidate will be allowed to proceed to the next year's courses of study unless he passes the examination in the Engineering subjects.

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#### **ADMISSION OF GRADUATES FROM OTHER UNIVERSITIES.**

Graduates or persons who have passed degree examinations of other Universities, who present evidence satisfactory to the Faculty of Science or Arts that they are qualified to pursue a course of advanced study or research are allowed to enter the University and to proceed to the degree of Master of Science or Master of Arts (without taking the Bachelor's degree) after two years of regular study or research, provided that they satisfy the Faculty concerned at the end of their first year that their work is satisfactory. Persons who take the Master's degree under this regulation will be allowed to proceed to the Doctor's degree at any time after one year from the attainment of the Master's degree, without further attendance at the University.

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# FACULTY OF SCIENCE.

## Syllabuses of Courses.

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### MATHEMATICS.

*Professor:* R. S. HEATH, M.Sc. ; M.A. (Cantab.),  
D.Sc. (Lond.), late Fellow of Trinity College, Cambridge.

*Lecturer:* C. T. PREECE, B.A. (Cantab.), Scholar of  
Trinity College, Cambridge.

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### PURE MATHEMATICS.

#### PRELIMINARY COURSE.

Mondays, Tuesdays, Thursdays, and Fridays, from  
10.30 to 11.30.

FEE:—£4 4s.

ARITHMETIC.—The ordinary rules, vulgar and decimal fractions, methods of manipulation of decimals in approximations, square root, proportion, interest, discount, stocks.

ALGEBRA.—The ordinary rules, factors, fractions, simple equations in one or more unknown quantities, quadratic equations and problems.

GEOMETRY.—The substance of Euclid, Books I.—IV. with Exercises.

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### UNIVERSITY COURSES.

#### I.

Mondays and Fridays, from 12.30 to 1.30.

Tuesdays and Thursdays, from 11.30 to 12.30.

FEE:—£4 4s.

ALGEBRA.—Elementary properties of surds and imaginaries; simultaneous quadratics and equations like quadratics; ratio, proportion and variation; arithmetical and geometrical progressions, and other simple series; theory of indices; theory and practical applications of logarithms; permutations and combinations; the binomial theorem for a positive integral exponent.

TRIGONOMETRY.—Trigonometrical ratios of acute angles; solution of right-angled triangles, and simple problems of heights and distances; circular measure of angles; length of arcs of circles; angles of any magnitude and sign; trigonometrical ratios of obtuse angles; sine, cosine, and tangent of the sum and difference of angles; formulæ for the ratios of the double angle, triple angle, and the half angle; transformation of sums and differences of sines and cosines into products, and vice-versâ; properties of triangles; solution of triangles; problems on heights and distances; the chief circles related to a triangle; regular polygons; areas of circles, sectors, and segments.

GEOMETRY.—The substance of Euclid, Books VI. and XI, 1—21, together with properties, areas of surface, and volumes of polyhedra, cylinders, cones, and spheres; elementary theory of projection and perspective.

## II.

Mondays, Tuesdays, Thursdays, and Fridays, from 9.30 to 10.30.

FEE:—£4 4s.

ALGEBRA.—Theory of quadratic functions and quadratic fractions, their graphs and maxima and minima values; the remainder and factor theorems of rational functions; theory of rational and partial fractions; the convergence and properties of the binomial, exponential and logarithmic series.

TRIGONOMETRY.—Inverse notation; graphs of the trigonometrical functions; theory of complex quantities; Argand's diagram and de Moirve's theorem; series for sine and cosine and calculation of tables; exponential forms of sine and cosine; hyperbolic functions; Gorgie's series; calculation of  $\pi$ .

GEOMETRY.—The elementary properties of conic sections.

DIFFERENTIAL CALCULUS. — Methods of differentiation; Taylor's and Maclaurin's theorems; theory of maxima and minima.

INTEGRAL CALCULUS.—Methods of integration; calculation of curve lengths, areas and volumes by single integration.



## III.

Mondays, Tuesdays, Thursdays, and Fridays, from 9.30 to 10.30.

FEE:—£4 4s.

ANALYTICAL GEOMETRY up to the elementary properties of the conic sections.

DIFFERENTIAL CALCULUS.—Tangents, normals, asymptotes, singularities of curves; tracing of curves; properties of special curves (including sine-curve, logarithmic curve, cycloids and catenary).

INTEGRAL CALCULUS.—Formulae of reduction; differentiation and integration of an integral with regard to constants; properties of special curves; double and triple integration.

DIFFERENTIAL EQUATIONS.—Standard forms; singular solutions; linear and homogeneous equations with constant coefficients; special equations commonly occurring in dynamical and physical problems.

## APPLIED MATHEMATICS.

## UNIVERSITY COURSES.

## I.

Mondays, Tuesdays, Thursdays, and Fridays, from 10.30 to 11.30.

FEE:—£4 4s.

STATICS.—The theory of the composition and resolution of forces; the theory of moments; parallel forces and couples; equilibrium of bodies under the action of forces in one plane; force-diagrams and link-polygons; centres of gravity; the simpler machines, balances, pulleys, screw-jacks, &c.; friction and its effects in the working of machines; theory of work and efficiency of machines; statics of jointed frame-works.

DYNAMICS.—Definition, measurement, and properties of velocities and accelerations; measurement of momentum and force; work and energy; motion of a body under the action of a force which is constant in magnitude and direction, including the motion of projectiles; theory of impacts; uniform circular motion; harmonic oscillations; the simple pendulum; theory of dimensions of dynamical quantities; change of units.



HYDROSTATICS.—Equilibrium of liquids under the action of gravity; pressures of liquids on plane areas and on solid bodies, partially or wholly immersed; Boyle's and Charles' laws of gases; hydrostatic machines, such as presses, barometers, pumps, &c.

## II.

Mondays and Fridays, from 11.30 to 12.30; Tuesdays and Thursdays, from 12.30 to 1.30.

FEE:—£4 4s.

STATICS.—Continuation of the subjects of the Course I. and more difficult applications; application of integral calculus to the determination of centres of gravities; stability; equilibrium of strings; small curvatures of flexible beams.

DYNAMICS OF A PARTICLE.—Application of differential and integral calculus to the measurement of velocities and accelerations; motion of chains under the action of gravity; motion under central forces; motions of particles on fixed curves.

RIGID DYNAMICS.—Moments of inertia; motion of a rigid body about a fixed axis; theory of impacts and centres of percussion; theory of angular momentum and kinetic energy; motions of bodies in two dimensions under the action of given forces.

HYDROSTATICS.—Metacentres, stability and small oscillations of floating bodies.

## HIGHER MATHEMATICS.

Classes will be arranged in more advanced mathematics, if sufficient demand for such instruction is forthcoming.

For Vacation Reading, see p. 303.

### REQUIREMENTS FOR DEGREES.

*Intermediate Examinations in Science and Arts:—*

Course I.

*B.Sc. Degree:—*

(i.) Mathematics as a Principal Subject:—

Courses II and III in Pure, and Courses I and II in Applied Mathematics.

(ii.) Mathematics as a Subsidiary Subject :—

One of the following combinations :

(a) Courses II and III in Pure Mathematics.

(b) Courses I and II in Applied Mathematics (for students who know sufficient pure mathematics.)

(c) Course II in Pure and Course I in Applied Mathematics.

*B.A. Degree :—*

(i.) (When Mathematics is taken for two years). The same combinations as for Subsidiary Mathematics for B.Sc. Degree.

(ii.) (When taken for one year only). Course II in Pure Mathematics or Course I in Applied Mathematics.

TIME TABLE.

MATHEMATICS.	Mon.	Tues.	Wed.	Th.	Fri.
PURE—					
Preliminary .....	10.30	10.30	...	10.30	10.30
Course I. ....	12.30	11.30	...	11.30	12.30
" II. ....	9.30	9.30	...	9.30	9.30
" III. ....	9.30	9.30	...	9.30	9.30
APPLIED—					
Course I. ....	10.30	10.30	...	10.30	10.30
" II. ....	11.30	12.30	...	12.30	11.30

## PHYSICS.

*Professor:* J. H. POYNTING, M.Sc.; Sc.D. Cantab.,  
F.R.S., late Fellow of Trinity College, Cambridge.

*Lecturer:* G. E. ALLAN, B.Sc. (Lond.).

*Assistant Lecturer:* G. A. SHAKESPEAR, B.A. (Cantab.),  
B.Sc. (Lond.).

## PRELIMINARY COURSE.

*Lecture Hours.*—Tuesdays and Thursdays, from 11.30 to 12.30.

*Practical Class.*—Mondays, from 11.30 to 1.

*FEE:*—£4 4s.

**STATICS.**—Force measured in pounds weight or grammes weight. Equilibrium under two equal and opposite Forces. Equality of the Action and Reaction between two bodies. Transmissibility of Force by strings, ropes, and rigid connections. Experimental investigation of the conditions for the equilibrium of a body when acted on by three parallel forces. Resultant. Moment of a force about a point. Balancing of moments when a body is in equilibrium. Centre of Parallel Forces. Centre of Gravity and the experimental investigation of its position. Stability and Instability of a body, supported from a point or on a base. Work and Rate of Working. Foot pound and Horse Power. The lever, the balance, the single string system of pulleys, the wheel and axle, the differential pulley, as illustrations of parallel forces, and of the Principle of Work. Experimental investigation of the conditions for the equilibrium of a body when acted on by three forces not parallel. The Triangle of forces. The Parallelogram of Forces. Graphic resolution and composition of Forces. Simple cases of resultant of two forces acting at a point. Balancing of Moments when a body is in equilibrium. Inclined Plane. Windmill. Sailing. Screw, toothed and worm wheels, as treated by the principle of Work. Efficiency of Machines: always reduced by friction.

**HYDROSTATICS.**—Distinction between liquids and gases. Pressure at a point in a fluid. Equality of pressure at points on the same level. Change of pressure with depth. Surface of a liquid level. Transmission of pressure in liquid. Hydraulic Press. Pressure against

horizontal surfaces and vertical containing walls. Archimedes' Principle. Density and Specific Gravity. Methods of finding specific gravities. Relation between volume and pressure in a Gas. Air Pumps. Atmospheric Pressure. Barometers. Common Pumps. Force Pump.

**DYNAMICS.**—Units of Length and Time. Velocity. Uniform acceleration. Use of formulæ connecting velocity, time, and distance travelled, with acceleration. Mass. Equal masses are those having equal acceleration under equal forces. Simple experiments to show that mass is proportional to weight at the same place. Constancy of mass under change of physical and chemical condition. Momentum and rate of change of momentum. Force measured by rate of change of momentum. Dyne and poundal. Momentum measure of Force proportional to its weight measure. Relation between weight measure and momentum measure. *g*. Atwood's machine. Momenta generated in two bodies by their mutual action, equal and opposite. Constancy of Momentum. Kinetic Energy and Work.

**GENERAL PROPERTIES OF MATTER.**—Diffusion. Solution. Dialysis. Osmotic Pressure. Elasticity and Rupture of Solids. Viscosity and Surface Tension of Liquids.

**HEAT.**—Temperature. Thermometers. Expansion. Specific Heat. Heat and Work. Change of State. Latent Heat. Vapour Pressure. Water Vapour in Atmosphere. Conduction. Radiation.

**ELECTRICITY.**—Electrification by Friction. Two Electrical States. Insulators and Conductors. Induction. Gold Leaf Electroscope. Frictional Machines. Electrophorus. Wimshurst Machine. Leyden Jar. Magnets. Magnetic Field. Earth as a Magnet. Current. Voltaic Cells. Accumulators. Magnetic Measurement of Current by Galvanometers. Ampère. Measurement of E.M.F. Volt. Ohm's Law. Measurement of Resistance. Ohm. Electrolysis. Induction of Currents. Induction Coil.

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### UNIVERSITY COURSES.

#### I.

*Lecture Hours.*—Mondays, Wednesdays, and Fridays, from 11.30 to 12.30.

*Practical Class.*—Wednesdays, from 2 to 4.

*FEE:*—£5 15s. 6d.

Position, Velocity, and Acceleration always relative to a standard. Effect of change of standard. Resolution

and Composition of Velocities and Accelerations. Uniform Motion in a circle. Conical Pendulum. Determination of  $g$ . Gravitation. Dimensions and Mass of the Earth.

PROPERTIES OF MATTER.—*Solids*: Sticking and sliding friction. Strains and Stresses. Bulk Strain and Shear Strain. Various kinds of permanent change of shape and rupture. Crystalline and Amorphous Solids. *Liquids*: Viscosity. Compressibility. Surface Tension. *Gases*: Compressibility. Viscosity. Kinetic Theory of Matter. Diffusion. Solution. Osmotic Pressure.

HEAT. — Temperature. Mercury-in-glass thermometer. Determinations of high and low temperatures. Expansion of solids and liquids. Circulation and Convection in Liquids. Expansion of gases at constant pressure and increase of pressure at constant volume. Gas thermometer. Circulation and Convection in gases. Movements of the Atmosphere. Quantity of Heat. Specific Heat and simple methods of measuring it. Conduction of Heat. Conductivity. Heat a form of Energy. The forms of Energy and their transformations according to fixed rates of exchange. The Conservation of Energy. Methods of determining the Mechanical Equivalent of Heat. The nature of Heat on the Kinetic Theory of Matter. Limitation in the amount of heat which can be transformed to work. Change of State. Latent Heat. Liquid-Vapour Change. Evaporation. Boiling. Vapour Pressure. Dependence of boiling point on Pressure, and explanation. Modes of measuring Vapour Pressure. Explanation of Vapour Pressure on the Kinetic Theory. Water Vapour in the Atmosphere. Hygrometers. Cloud. Fog. Dew. Solid-Liquid Change. Melting Point. Change of volume on melting. Effect of pressure on Melting Point. Regelation. Radiation. High and Low Radiating and Absorbing Powers. Comparison of properties of radiation from hot bodies and properties of light. Identification. The Spectrum. Substances absorb the radiations which they can emit. Dark lines in Solar and Stellar Spectra.

LIGHT.—Light a form of Energy. Rectilinear Propagation. Shadows. Eclipses. Inverse Square Law. Simple Photometers. Reflection. Refraction and Dispersion. Velocity of Light. Light a form of Wave Motion. Illustrations of Interference. The Diffraction Grating. Polarisation of Light. Mirrors. Prisms. Lenses. The Eye. Simple forms of Telescope and Microscope.

SOUND.—Sound arises from vibrating sources which send out longitudinal waves in air. Characteristics of the



waves, corresponding to Loudness, Pitch and Quality. Velocity of Sound in air, and other media. Determinations of Frequency. Resonance. Its use to analyse sounds. Harmonics and Upper Partial. Quality. Transverse Vibrations of Strings. Vibrations of air in Pipes. Other vibrating sources. Beats. Concord and Discord. Combination Tones.

**MAGNETISM.**—Properties of Magnets. The two poles, their equality and inseparability. Magnetism by Induction. Methods of making Magnets. Inverse Square Law. Magnetic Fields and Lines of Force. Strength of poles and Moments of Magnets. The Earth as a Magnet. Declination, Dip and Intensity. Magnetic Properties of different substances. Temperature and Magnetic Qualities.

**ELECTRICITY.**—The two kinds of Electrification and simple modes of producing them. Conductors and Insulators. The Gold Leaf Electroscope. Electrification by Induction. Frictional Electrical Machines. The Electrophorus. The Wimshurst Machine. The Leyden Jar. Production and Disappearance of the two Electrifications, always in equal quantities. The Electric Field considered respectively as the seat of Electric Strain. Electric Forces and Electric Energy. The Inverse Square Law. The Unit of Charge. Potential, Capacity and Energy of Charge. Electrometers. The effect of the medium. Specific Inductive Capacity.

**ELECTRO-MAGNETISM.**—Electric Discharge and the Magnetic Effects accompanying it. Electro-magnetic Waves. Electric Current. Voltaic and Storage Cells. The Magnetic Properties of the Current Circuit. The Ampere. Galvanometers and Ampere Meters. The Forces on Current Circuits in a Magnetic Field. Electric Motors. Ohm's Law. Resistance. The Heat developed in the Circuit. Joule's Law. The Ohm. The Volt. Electrolysis. Electro-chemical equivalents. Thermo-electricity. The Induction of Currents. Lenz's Law and Faraday's Law. The Dynamo. The Induction Coil. The Transformer.

## II.

This Course extends over two years.

### FIRST YEAR. PART I.

*Lecture Hours.*—Mondays, Wednesdays, and Fridays, from 10.30 to 11.30.

**FEE:**—£3 13s. 6d.



*Laboratory Hours.*—Six, nine, or twelve hours weekly, by arrangement.

*FEE:*—Six hours per week, £4 4s., and for each additional three hours, £1 1s.

**MECHANICS.**—Simple Harmonic Motion. Simple Pendulum. Motion of a body round a fixed Axis. Compound Pendulum. Methods of determining relative and absolute values of  $g$ . Ballistic Pendulum. Gravitation. Methods of determining  $G$ .

**PROPERTIES OF SOLIDS.**—Friction. Moduli of Elasticity and methods of determining them.

**HEAT.**—The Laws of Thermodynamics. Absolute Scale of Temperature. Volume-pressure and Entropy-temperature Diagrams and their use. Solution. Osmotic Pressure. Exact Measurements in Heat.

**MAGNETISM AND ELECTRICITY.**—General propositions with regard to an inverse square field of force. *Magnetism*: Magnetic Measurements. The Earth's Field. Paramagnetism and Diamagnetism. Theory of the Magnetic Field. *Electricity*: Theory of the Electric Field. Electric Measurements. *Electro-magnetism*: Electric Discharge. Magnetic Properties of Current Circuits. Heating Effects. Chemical Effects. Thermo-electricity. Current Induction. Electro-magnetic Measurements. Theory of the Electro-magnetic Field.

## SECOND YEAR. PART II.

*Lecture Hours.*—Tuesdays, Wednesdays, and Thursdays, from 10.30 to 11.30 (Winter and Spring Terms only).

*FEE:*—£3 13s. 6d.

*Laboratory Hours.*—Six, nine, or twelve hours weekly, by arrangement.

*FEE:*—Six hours per week, £4 4s., and for each additional three hours, £1 1s.

**PROPERTIES OF FLUIDS.**—*Liquids*: Viscosity. Bulk Modulus of Elasticity. Surface Tension. *Gases*: Viscosity. Compressibility. Kinetic Theory of Gases. Molecular Dimensions.

**LIGHT.**—Photometry. Mirrors. Prisms. Lenses. Dispersion. Achromatic Combinations. Optical Instruments. Wave Theory. Interference. Diffraction. Polarisation

by Reflection and Refraction. General account of Polarisation by Crystals. Circular and Elliptic Polarisation. Rotation of Plane of Polarisation. Polarimeters.

SOUND.—Nature of Sound Waves in Air. Velocity of Sound. Measurements of Frequency. Forced Vibrations. Analysis of Waves. Strings. Pipes. Maintenance of Vibrations. Interference of Sound. Waves. Beats. Concord and Discord. Combination Tones.

For Vacation Reading, see p. 303.

### REQUIREMENTS FOR DEGREES

*Intermediate Examination in Science:—*

Course I.

*B.Sc. Degree:—*

Course II, extending over two academic years.

Candidates taking Physics as a principal subject should work not less than nine hours weekly in the laboratory in the first year, and not less than twelve hours weekly in the second year.

### TIME TABLE.

PHYSICS.	Mon.	Tues.	Wed.	Thurs.	Fri.
Course I. ....	11.30	...	11.30	...	11.30
Practical. ....	...	...	2-4	...	...
Course II.—					
Part I. ....	10.30	...	10.30*	...	10.30
Part II. ....	...	10.30	10.30*	10.30	...
Practical.. ....	...	(By arrangement.)			...

\* The class will work examples at this hour

## CHEMISTRY.

*Professor* : PERCY F. FRANKLAND, M.Sc. ; Ph.D., L.L.D.,  
F.R.S.

*Lecturer* : T. S. PRICE, D.Sc. (Lond.), Ph.D.

*Demonstrators* : {

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### PRELIMINARY COURSE.

Wednesdays and Fridays, at 11.30, during the Winter and Spring Terms.

**FEE** :—£2 2s.

Gaseous, liquid, and solid states of matter.

Nature of chemical change. Elements, compounds, and mixtures.

Types of chemical action.

Solution, crystallisation, distillation, diffusion.

Chemical and physical properties of air and water.

Nature of acids, bases, and salts.

Nature, occurrence, chief modes of preparation, and principal properties of the following non-metallic elements and their more important compounds :  
Hydrogen, Oxygen, Carbon, Silicon, Sulphur, Nitrogen, Phosphorus, Fluorine, Chlorine, Bromine, and Iodine.

Combination by weight and volume. Symbols, equations, and calculations relating to weight and volume. Nomenclature.

Chemical and Physical characteristics of metals as illustrated by Sodium, Calcium, Iron, Zinc, Lead, Mercury, Copper, and Silver.

This course of experimental lectures is adapted to the needs of those who are entirely unacquainted with Chemistry, and for those who are preparing for the Matriculation Examination of the University.

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### UNIVERSITY COURSES.

#### I.

**A.** This part of the course is arranged (1) to give a full exposition of the general principles of Chemical

Science, (2) for the systematic study of the properties of the more important elements and their compounds, and (3) to indicate some of the chief applications of Chemistry in the Arts and Manufactures.

Four hours weekly during the Winter and Spring Terms. Some of the above meetings of the class will be devoted to tutorial work. Attendance at this tutorial class is compulsory, as is the performance of the exercises set by the Professor.

*Lecture hours.*—9.30 to 10.30 a.m. on Mondays to Thursdays inclusive.

*FEE:*—£5 5s.

**B.** This part of the course includes an introduction to the study of Organic Chemistry, with a description of the properties, relations, and methods of preparation of the more important groups of Carbon-compounds.

Three hours weekly during the summer term.

*Lecture hours.*—9.30 to 10.30 a.m. on Mondays, Wednesdays, and Fridays.

*FEE:*—£1 11s. 6d.

## II.

**A.** *Advanced Organic Chemistry.*—This course extends over two years, and is divided into two parts :—

- (i.) Carbon-compounds of the Fatty Series.
- (ii.) Aromatic and other Cyclic Compounds.

Only one of these parts will be taken in each year. The class meets twice weekly by arrangement during the Winter and Spring Terms.

*FEE* for each part :—£2 2s.

**B.** *General and Physical Chemistry.*—The course will deal in outline with the following :—

Characteristic properties of gases, liquids, and solids. Other properties of matter, especially molecular volume,

heat, refraction equivalent, and rotation ; their relation to constitution.

Dilute solutions and their analogy with gases ; their osmotic and vapour pressures, their boiling and freezing points.

Aqueous solutions : electrolysis and the electrolytic dissociation theory ; rate of migration, conductivity and difference of potential.

Relations between the quantities of reacting substances ; molecular and atomic weights ; the periodic law.

Velocity of chemical action ; reactions of various orders. Chemical equilibrium ; homogeneous equilibrium and the law of mass action ; heterogeneous equilibrium and the phase rule.

Energy of chemical systems ; thermochemistry.

Thermodynamics ; its application to certain elementary cases in chemistry and electrochemistry.

The kinetic theory.

The class meets once weekly by arrangement during the Winter and Spring, and twice weekly during the Summer term.

FEE :—£1 11s. 6d.

### III.

**A. *Advanced Organic Chemistry.***—Part (i.) or (ii.) of Course II. A.

The Class meets two hours weekly by arrangement during the Winter and Spring Terms.

FEE :—£2 2s.

**B. *General and Physical Chemistry.***—Short courses on special subjects attracting attention at the time.

FEE :—£1 11s. 6d.

**PRACTICAL CHEMISTRY.****I.**

Not less than nine hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Preparation of pure substances, gaseous, liquid, and solid.

Experiments illustrating the laws of combination.

Simple qualitative analysis, simple gravimetric and volumetric determinations.

**II.**

Not less than fifteen hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Advanced qualitative and quantitative analysis.

Simple organic preparations.

**III.**

Not less than fifteen hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Gas analysis, molecular weight, and other physical determinations.

Advanced organic preparations.

**LABORATORY PRACTICE.**

The Laboratory will be open daily from 9.30 to 5, except on Saturdays, when it will be closed at 1 p.m.

Each student will pursue an independent Course of study to be determined after consultation with the Professor. He will be guided in his operations by the Professor or his Assistants.



TEXT BOOKS.—Newth's Manual of Chemical Analysis, Qualitative and Quantitative (Longmans); Fresenius' Qualitative Analysis (Churchill); Fresenius' Quantitative Analysis (Churchill); Sutton's Volumetric Analysis (Churchill).

FEES:—

	All day.	Three hours per day.	Three hours per day; five days a week.	Three hours per day; three days a week.
	<i>Guineas.</i>	<i>Guineas.</i>	<i>Guineas.</i>	<i>Guineas.</i>
One Term ...	7	$4\frac{1}{2}$	4	$2\frac{1}{2}$
Two Terms ...	13	$8\frac{1}{2}$	$7\frac{1}{2}$	5
Three Terms...	18	12	11	$6\frac{1}{2}$

Each student will be required to provide himself with a set of simple apparatus, the total cost of which need not exceed 30s. A few sets may be hired at the Laboratory store for a charge of 7s. 6d. each.

Gas, water, and all ordinary reagents (except methylated spirit, ether, chloroform, silver nitrate and platinum perchloride) are supplied by the University, and the larger forms of apparatus may be obtained on loan from the Laboratory store, on condition that breakages are made good.

Some of the special chemicals required for organic preparations have to be purchased by the Student.

Some additional Apparatus will also be required by each student upon commencing QUANTITATIVE ANALYSIS.

Special arrangements are made by the Professor for students pursuing Research.

#### PRACTICAL CLASS.

##### *For Laboratory Students.*

A special class on the Theoretical Foundations of Analytical Chemistry is held every Saturday morning from 9.30 to 10.30. Attendance is compulsory for first-year students.

No Fee.

### Excursions.

During previous Sessions permission has been obtained to visit some of the great factories in and near Birmingham, in which chemical and metallurgical industries are carried on. Students have thus had most valuable opportunities of gaining a practical acquaintance with some branches of Applied Science. The privilege thus courteously granted by several manufacturers will, it is hoped, be enjoyed in every future Session. The excursions will be conducted by the Professor.

For Vacation Reading, see p. 304.

### REQUIREMENTS FOR DEGREES.

#### *Intermediate Examination in Science :—*

Lectures, Course I. (A and B.)

Laboratory, Course I.

#### *B.Sc. Degree :—*

(i.) Chemistry as a principal subject :

Lectures, Courses II and III.

Laboratory, Courses II and III.

(ii.) Chemistry as a subsidiary subject :

One of the following combinations :

(a) Lecture Courses II and III in Organic Chemistry, in successive years, with not less than fifteen hours weekly in the Laboratory during one Session.

(b) Lecture Courses II and III in General and Physical Chemistry, with not less than fifteen hours weekly in the Laboratory during three terms.

#### *B.A. Degree :—*

Lecture Course I, with not less than nine hours' Laboratory work weekly.



## ZOOLOGY AND COMPARATIVE ANATOMY.

*Professor*: T. W. BRIDGE, M.Sc.; Sc.D. (Cantab.), F.L.S.

*Lecturer and Demonstrator*: W. E. COLLINGE, B.Sc., F.Z.S.

*Museum Assistant*: F. W. CRISPE.

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### PRELIMINARY COURSE.

*Lecture Days*:—Saturdays at 11.30.

A course of about twenty-five lectures on Animal Biology, with practical demonstrations, will be given during the Session. The course will meet the requirements of Matriculation Candidates who desire to take Animal Biology as one of their optional subjects.

FEE: £1 11s. 6d.

### SYLLABUS.

- (1) Distinctive properties of living matter or protoplasm, as illustrated by the structure and mode of life of the Proteus-animalcule or *Amæba*. Differences between Animals and Plants. The nature of the Cell.
- (2) The general structure of the Frog. Elementary physiology of the Frog. The organs of digestion and their use. The nature of blood. The structure of the heart, and the arrangement of the more important blood vessels. The use of a circulatory system. The nature of excretory organs. Mode of breathing. The kidneys and their use.
- (3) The more important facts in the structure and habits of the freshwater Polype (*Hydra*); the Earthworm (*Lumbricus*); and the Crayfish (*Astacus*).
- (4) Methods of reproduction in animals. The egg-cell and the sperm-cell. Fertilization of the egg. Segmentation of the fertilized egg. The metamorphosis of the Frog, treated in an elementary fashion.

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### UNIVERSITY COURSES.

#### I.

*Lecture Days*:—Tuesdays and Thursdays, at 12.30.

### A course of about fifty lectures on Elementary Zoology.

A. Living and non-living matter.—Distinctive properties of living matter or protoplasm, as illustrated by the study of the Proteus animalcule or *Amæba*.—Distinction between Animals and Plants.—Comparison of the unicellular *Amæba* with the complex multicellular Frog.—Origin of the Frog. The egg-cell or ovum.—Segmentation of the ovum, and the subsequent formation of physiologically different groups of cells or tissues. Structure of the various elementary tissues of the Frog. Epithelia, connective, muscular, and nervous tissues. The combination of tissues to form organs.

B. The anatomy and histology of the various systems of organs in the Frog, and the elementary physiology of the organs of digestion, circulation and excretion. Physiological division of labour and morphological differentiation of structure.

C. This part of the course will treat of the structure of the following typical animals, viewed from a comparative standpoint:—

The Proteus-animalcule (*Amæba*), the Bell-animalcule (*Vorticella*), the freshwater Polype (*Hydra*), the Earthworm (*Lumbricus*), the Crayfish (*Astacus*), the Dog-fish (*Scyllium*), the Frog (*Rana*), and the general structure of the Rabbit (*Lepus*).

D. The concluding lectures of the course will deal with the phenomena of Reproduction. Asexual and Sexual Reproduction. Ova and Spermatozoa. Spermatogenesis Fertilization and Segmentation of the ovum in *Amphioxus* and *Rana*. The development and larval history of the Frog, treated in an elementary fashion.

### Practical Class.

In the Practical Class, which will be conducted in connexion with this course, the above-mentioned animal types will be dissected or microscopically examined.

*Laboratory*.—Tuesday afternoon, from 2 to 4, in the Winter and Spring Terms, and on Tuesday and Thursday afternoons during the Summer Term.

FEE :—For lecture and laboratory courses, £4 4s.

### II.

*Lecture Days*.—Mondays, Tuesdays, Wednesdays, and Fridays, at 12.30, or at such times as may be fixed by arrangement with the class.

The course will include a more or less detailed description of the Morphology and Embryology of selected examples of certain of the principal groups of animals, and of the more important modifications of structure which are met with within the limits of each group. The Phylogenetic relations of each group will also be discussed, as well as the more elementary facts of its Geographical Distribution and Bionomics.

### SYLLABUS OF GROUPS AND TYPICAL EXAMPLES.

PHYLA.	EXAMPLES.
<b>PROTOZOA.</b>	
( i. ) Rhizopoda .....	<i>Amœba, Gromia, Miliola, Globigerina, Actinophrys, Thalassicoëlla.</i>
( ii. ) Mycetozoa .....	<i>Fuligo.</i>
( iii. ) Mastigophora .....	<i>Monas, Codosiga, Ceratium, Noctiluca.</i>
( iv. ) Ciliata .....	<i>Paramecium, Stentor.</i>
( v. ) Acinetaria.....	<i>Acineta.</i>
( vi. ) Sporozoa .....	<i>Monocystis, Coccidium.</i>
<b>PORIFERA.</b>	
( i. ) Calcarea .....	<i>Ascetta, Sycon.</i>
( ii. ) Non-calcarea .....	<i>Spongilla, Euspongia.</i>
<b>CœLENTERATA.</b>	
( i. ) Hydrozoa .....	<i>Tubularia, Obelia, Car- marina, Physophora, Millepora.</i>
( ii. ) Scyphozoa.....	<i>Aurelia.</i>
( iii. ) Anthozoa—	
(a) Alcyonaria .....	<i>Alcyonium, Gorgonia.</i>
(b) Zoantharia .....	<i>Actinia, Edwardsia, Flabellum, Madrepora.</i>
( iv. ) Ctenophora .....	<i>Pleurobrachia.</i>
<b>PLATYHELMINTHES.</b>	
( i. ) Turbellaria .....	<i>Convoluta, Polycelis, Den- drocœlum, Leptoplana.</i>
( ii. ) Trematoda.....	<i>Distomum.</i>
( iii. ) Cestoda .....	<i>Tœnia.</i>
<b>NEMERTEA</b> .....	<i>Carinella, Cerebratulus.</i>



## ANNELIDA.

## EXAMPLES.

- |                            |                           |
|----------------------------|---------------------------|
| ( i. ) Archiannelida ..... | <i>Polygordius.</i>       |
| ( ii. ) Chætopoda .....    | <i>Nereis, Lumbricus.</i> |
| ( iii. ) Hirudinea .....   | <i>Hirudo.</i>            |

## POLYZOA.

- |                          |                  |
|--------------------------|------------------|
| ( i. ) Entoprocta .....  | <i>Loxosoma.</i> |
| ( ii. ) Ectoprocta ..... | <i>Bugula.</i>   |

BRACHIOPODA .....	<i>Waldheimia, Lingula.</i>
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## MOLLUSCA.

- |                           |   |
|---------------------------|---|
| ( i. ) Pelecypoda .....   | <i>Nucula, Mytilus, Anodonta.</i>                   |
| ( ii. ) Scaphopoda .....  | <i>Dentalium.</i>                                   |
| ( iii. ) Gastropoda       |   |
| ( a ) Isopleura .....     | <i>Chiton.</i>                                      |
| ( b ) Anisopleura .....   | <i>Patella, Haliotis, Buccinum, Aplysia, Helix.</i> |
| ( iv. ) Cephalopoda ..... | <i>Nautilus, Sepia.</i>                             |

## ARTHROPODA.

- |                            |   |
|----------------------------|---|
| ( i. ) Crustacea .....     | <i>Apus, Daphnia, Cyclops, Lepas, Nebalia, Astacus.</i> |
| ( ii. ) Arachnida .....    | <i>Limulus, Scorpio.</i>                                |
| ( iii. ) Onychophora ..... | <i>Peripatus.</i>                                       |
| ( iv. ) Myriapoda .....    | <i>Scolopendra, Julus.</i>                              |
| ( v. ) Insecta .....       | <i>Periplaneta.</i>                                     |

## ECHINODERMA.

- |                             |                           |
|-----------------------------|---------------------------|
| ( i. ) Crinoidea .....      | <i>Antedon.</i>           |
| ( ii. ) Holothuroidea ..... | <i>Holothuria.</i>        |
| ( iii. ) Stelleroidea ..... | <i>Asterias, Ophiura.</i> |
| ( iv. ) Echinoidea .....    | <i>Echinus.</i>           |

## CHORDATA.

- |                                |   |
|--------------------------------|---|
| ( i. ) Hemichorda .....        | <i>Balanoglossus.</i>   |
| ( ii. ) Urochorda .....        | <i>Appendicularia, Ascidia, Pyrosoma, Salpa.</i>                    |
| ( iii. ) Cephalochorda .....   | <i>Amphioxus.</i>   |
| ( iv. ) Craniata [Vertebrata]. |   |
| ( a ) Cyclostomata .....       | <i>Petromyzon, Myxine.</i>  |
| ( b ) Pisces .....             | <i>Scyllium, Chimæra, Polypterus, Gadus, Cera-</i><br><i>todus.</i> |
| ( c ) Amphibia .....           | <i>Rana, Triton.</i>  |
| ( d ) Reptilia .....           | <i>Lacerta, Chelone, Boa,</i><br><i>Crocodilus.</i>                 |
| ( e ) Aves .....               | <i>Columba.</i>   |
| ( f ) Mammalia .....           | <i>Echidna, Macropus,</i><br><i>Lepus.</i>                          |

### Laboratory Course.

In the practical class, which will be conducted in connection with this course, a selection of the above-mentioned animal types will be dissected and microscopically examined.

**FEE:**—For lectures and laboratory course, £6 6s.

### III.

The course for Third Year Students will consist mainly of Laboratory (at least eight hours weekly) and Museum work, but occasional lectures on special aspects of the subject will be given at times to be fixed by arrangement with the class.

**FEE:**—Lectures and Laboratory, £8 8s. 0d.

### Zoological Laboratory.

The Laboratory will be open daily, from 10 to 5 (Saturdays, 10 to 1). In addition to students taking up practical work in connection with the various lecture courses, the Laboratory will be open to all who may desire to engage in any special course of practical work, or to pursue original investigations, with a view to the requirements for the higher University Degrees of M.Sc. and D.Sc.

**LABORATORY FEE:**—£3 3s. per term.

For Vacation Reading, see p. 304.

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### THE PORT ERIN BIOLOGICAL LABORATORY.

The Council of the University makes an annual grant to the Marine Biological Laboratory at Port Erin, in the Isle of Man, in return for which one of the tables in the Laboratory is reserved solely for the free use of those students in the Zoological Department of the University who wish to study Marine Zoology, or pursue some branch of research. During the occupation of the table each worker will be entitled to the use of microscopes, re-agents, including a specified allowance of methylated spirit, and other apparatus, and of the boats, dredges,

tow nets belonging to the laboratory, so far as is compatible with the claims of other workers and with the routine work of the station.

Facilities will also be given to workers to make their own collections of marine organisms.

Students wishing to avail themselves of the privilege are requested to apply to Professor Bridge, from whom further information may be obtained.

### REQUIREMENTS FOR DEGREES.

*Intermediate Examination in Science*:—Course I in the first year.

#### *B.Sc. Degree* :—

I. Zoology as a Subsidiary Subject: Course II in the second year.

II. Zoology as a Principal Subject: Course II in the second year, and Course III, in the third year.

#### *B.A. Degree* :—Course II.

*M.Sc., D.Sc.*—Students who have taken the degree of B.Sc., and who desire to proceed to the higher University degrees of M.Sc. and D.Sc., may confer with the Professor as to the choice of a subject for the thesis (M.Sc.), or for original research (D.Sc.).

### TIME TABLE.

ZOOLOGY.	Mon.	Tues.	Wed.	Thur.	Fri.
Course I. ....	...	12.30	...	12.30	...
Course II. ....	12.30	12.30	12.30	...	12.30
Course III. ....	<i>(By arrangement.)</i>				
Laboratory .....	Daily from 10 to 5				

## BOTANY AND VEGETABLE PHYSIOLOGY.

*Professor*: W. HILLHOUSE, M.Sc.; M.A. (Cantab.), F.L.S.

*Assistant Lecturer*: A. H. R. BULLER, B.Sc. (Lond.),  
Ph.D. (Leip.).

### PRELIMINARY COURSE.

*Lecture Days*:—In the Winter and Spring Terms, Thursdays, 11.30 to 1; in the Summer Term, Tuesdays and Thursdays, 11.30 to 12.30.

*FEE*:—£2 2s.

The Lectures will cover the following Syllabus for the Matriculation Examination:—

#### A. *Plant Form as a Key to Relationships.*

- (1) The chief characters of root, stem, bud, and leaf of the principal British plants of quite general distribution and of garden plants of general cultivation, and the nature and structure, as determinable by eye or lens, of common bulbs, fruits, seeds, or other vegetable products in ordinary use, and universally met with in shop or market.
- (2) The most important floral and fruiting characters of the following British Natural Orders:—Ranunculaceae, Cruciferae, Caryophyllaceae, Leguminosae, Rosaceae, Umbelliferae, Compositae, Scrophularineae, Labiatae, Liliaceae.

#### B. *How Plants Live, Grow and Reproduce.*

- (3) The mode of development of the plant, the elementary facts of nutrition and respiration, the nature and function of root, stem and leaf, and their relations with external conditions and forces, to be determined *experimentally* by the aid of seedlings grown in the class-room, &c., from the following typical seeds or one-seeded fruits, viz., castor-oil or buck-wheat, pea or bean, sunflower, mustard or cress, and maize or wheat or barley, and the bulb of hyacinth or onion.
- (4) The functions of the floral parts, their relations with pollination, the production and protection of seeds, and the provisions for seed-dispersal, especially as illustrated in the Natural Orders named above.

## UNIVERSITY COURSES.

## I.

*Lecture Days.*—Mondays and Fridays at 4.0, excluding Fridays in Summer Term.

*Laboratory.*—The course will be illustrated by work in Morphology, internal and external, and Physiological experiments, at 9.30 and 2.30 on Fridays, or, *as an alternative*, on Saturdays at 10.30.

*FEE* :—Lectures and Laboratory, £4 4s.

The Morphology of the Seed ; Germination ; the external morphology of the Seedling. The physiology of germination ; the general nature of the reserve food-stuffs ; the relations of the seedling with external conditions and natural forces ; the theory of Irritability. Growth to exhaustion, and the general conditions of active life and self-nutrition.

The general morphology of the Plant Body, and the principal modifications in form and distribution of the vegetative members, Root, Shoot, and Leaf.

The Living Principle of the plant—Protoplasm ; the Cell, and its principal modifications for special purposes ; evolution and distribution of the Tissues, considered especially from a biological standpoint.

The Leaf as a bio-anatomical study ; epidermis, vascular bundles, ground-tissue, intercellular spaces.

The internal morphology of the Stem in its chief modifications ; the results of cambial activity ; the secondary protective tissues, Cork and Bark. The Root.

The Bud ; the principal characteristics of increase in length in shoot and root.

The phenomena of climbing, and illustrations of special powers of movement.

The elementary facts in the Nutrition of the plant, including the nature and sources of the raw materials of food, and the constitution of the soil ; Absorption and the



Transpiration current; the nature and functions of Chlorophyll; the broad principles of metabolism, and the distribution, storage, and utilisation of its products. Respiration.

Nutrition without chlorophyll, and special fermentative changes, illustrated by Yeast, Bacteria and *Pythium*. Degrees of Parasitism in Flowering Plants. Insectivorous Plants.

Reproduction, Asexual and Sexual, further illustrated by *Spirogyra*, *Fucus* and *Agaricus*. The primary divisions of the Vegetable Kingdom, viz.:—Thallophyta; Bryophyta (illustrated by a moss-plant); Pteridophyta (a fern-plant, and *Selaginella*); and Phanerogamia (flowering plants).

The general character and structure of the reproductive organs in Phanerogamia; pollination, and its methods; fertilisation; the development of the seed and the fruit; seed protection and dispersal; the natural spread of plants, and its limitations.

The Flower, and its chief modifications in structural plan, as illustrated in the following Natural Orders of the British Flora, viz.:—Ranunculaceae, Cruciferae, Violaceae, Caryophyllaceae, Leguminosae, Rosaceae, Umbelliferae, Compositae, Scrophularineae, Labiatae, Cupuliferae, Liliaceae; and the description of plant specimens in semi-technical language.

*Botanical Excursions.* A few will be arranged for Saturday afternoons in the Summer Term, and will be concerned with the Local Flora in its environment relations; as *e.g.* Moor, Marsh and Bog; Meadow and Riverside; Woodland, Hedgerow, and Climbers; Road-side and cultivated ground.

## II.

*Lecture Days.*—Mondays, Tuesdays, Thursdays and Fridays at 11.30.

*Laboratory.*—Six hours weekly, with two extra hours in the Summer Term. By students taking Botany as a principal subject, more time should be given.

**FEE:**—Lectures and Laboratory, £6 6s.



A. *Life-history and Classification.*

The morphology, external and internal, embryology, and phylogenetic relationships of the chief groups of plants, and their most important sub-divisions, will be studied by the aid of the following selected examples, which, so far as possible, will be dealt with in Laboratory and the field as well as Lecture Room.

**Thallophyta.**

- i. Myxomycetes.
- ii. Cyanophyceae *Gloeocapsa, Nostoc, Oscillaria, Rivularia.*
- iii. Schizomycetes (Bacteria).
- iv. Diatomeae.
- v. Peridineae
- vi. Conjugatae *Spirogyra, Desmids.*
- vii. Chlorophyceae (a) Protococcaceae *Pandorina, Pleurococcus, Pediatrum, Hydrodictyon, Volvox.*
- (b) Confervoideae *Ulothrix, Cladophora, Edogonium, Coleochaete.*
- (c) Siphoneae *Vaucheria, Codium, Caulerpa.*
- viii. Phaeophyceae *Ectocarpus, Laminaria, Fucus.*
- ix. Rhodophyceae *Batrachospermum, Polysiphonia.*
- x. Characeae *Chara, Nitella.*
- xi. Hyphomycetes (a) Zygomycetes *Mucor.*
- (b) Oomycetes *Pythium, Cystopus.*
- (c) Hemiasci *Saccharomycetes*
- (d) Perisporiaceae *Erysiphe, Eurotium, Penicillium.*
- (e) Pyrenomycetes *Claviceps, Nectria, Xylaria.*
- (f) Discomycetes *Peziza, Ascobolus.*
- (g) Tuberaceae *Tuber.*
- (h) Hemibasidii *Ustilago, Tilletia.*
- (i) Uredineae *Puccinia.*
- (k) Hymenomycetes *Agaricus.*
- (l) Gasteromycetes.
- xii. Lichenes *Collema, Cladonia, Parmelia, Anaptychia,*

**Bryophyta.**

## i. Hepaticae

*Marchantia, Peltia,  
Jungermannia  
Anthoceros.*

## ii. Musci

*Funaria, Polytrichum,  
Sphagnum.*

**Pteridophyta.**

## i. Filicineae

## (a) Filices

*Pteris, Aspidium,  
Angiopteris, Ophioglossum.*

## (b) Hydropterideae

*Salvinia, Pilularia.*

## ii. Equisetineae

*Equisetum.*

## iii. Lycopodinae

## (a) Lycopodiaceae

*Lycopodium.*

## (b) Selaginellaceae

*Selaginella.*

## (c) Isoetaceae

*Isoetes.*

**Phanerogamia (Spermatophyta).**

## i. Gymnospermae (a) Cycadales

*Cycas.*

## (b) Ginkgoales

*Ginkgo.*

## (c) Coniferales

*Pinus.*

## (d) Gnetales

*Ephedra.*

## ii. Angiospermae

## Monocotyledones

## Dicotyledones

*Field Botany.*—In addition to the general morphology, &c. of the Phanerogamia, the course will include the characters and relationships of the most important Natural Orders in the British Flora and their centres of extra-British distribution; and the chief sub-orders of the following: Ranunculaceae, Rosaceae, Solanaceae, Cupuliferae, Coniferae; the description of plants (not necessarily British) in technical language; the origins of the British Flora.

**B. Physiology and Experimental Morphology.**

The stability of the Plant Body.

Nutrition; the processes of absorption of water and dissolved substances, and their distribution; Root-pressure; Transpiration,

Aeration,

The metabolic processes. Respiration.

The phenomena of growth and movement. Irritability ; the transmission of stimuli, and the mechanism of movement.

In the Laboratory the most important of the above phenomena will be experimentally illustrated, in the main qualitatively.

### III.

Short Courses of Lectures upon special branches of work, as may be arranged.

*Third Year Laboratory.* Students who take Botany as a Principal Subject will be required to give as much time as possible to Laboratory work in Anatomy, Development, Physiology (so far as practicable) and Micro-Chemistry, during the Winter and Spring Terms, and to devote the Summer Term wholly to Experimental Physiology.

FEE :—Lectures and Laboratory, £8 8s.

For Vacation Reading, see p. 305.

### REQUIREMENTS FOR DEGREES.

*Intermediate Examination in Science* :—Course I.

*B.Sc. Degree.* Botany as a Principal Subject :—  
Courses II and III.

Botany as a Subsidiary Subject :—Course II, or, in certain cases, special Courses III and part of II.

Course I is also appropriate for the following :—Intermediate Science or Preliminary Scientific of the University of London (with Supplementary Laboratory work) ; the first examination for the degrees in Science or Medicine of the Universities of Edinburgh and Glasgow ; and the Minor Examination of the Pharmaceutical Society.

Course II.—London Int. Sci. Honours, and B.Sc.

*Botanical Gardens, Edgbaston.* Students attending any of the above classes can obtain from the Professor a card of admission to these Gardens.

TIME TABLE.

BOTANY.				Mon.	Tues.	Wed.	Thurs.	Fri.
Preliminary	...	...	...	...	†11.30	...	11.30	...
Course I.	...	...	...	4.0	...	...	..	4.0*
Course II.	...	...	...	11.30	11.30	...	11.30	11.30
Course III.	...	...	...	...	<i>(By arrangement.)</i>			...

\* Winter and Spring Terms only.

† Summer Term only.

## GEOLOGY

(WITH PHYSIOGRAPHY AND GEOGRAPHY).

*Professor* : CHARLES LAPWORTH, M.Sc. ; LL.D. (Aber.),  
F.R.S., F.G.S.*Assistant Professor* : W. W. WATTS, M.Sc. ; M.A. (Cantab.),  
Sec.G.S., late Fellow of Sidney Sussex College, Cambridge.*Lecturer and Demonstrator* : F. RAW, B.Sc. (Lond.), F.G.S.

## UNIVERSITY COURSES.

## I.

*Lectures* (Winter and Spring Terms).—Mondays,  
Wednesdays, and Fridays, at 10.30. (Summer Term).  
By arrangement.*Demonstrations*.—Tuesdays and Thursdays at 9.30, and  
one hour weekly, by arrangement, to be devoted to  
reading and practical work.

FEE :—£5 5s.

**Physical Geology.***General characters* of the simple rock types, clastic and  
crystalline.*Origin of the materials of the clastic rocks*.—Denudation by  
weather, rivers, glaciers, and the sea ; deposition of  
sediments, and structures resulting from it ; consolida-  
tion and cementation.*Classification of clastic rocks* and characters of the chief  
types ; breccia, conglomerate, grit, sandstone, clay,  
shale, limestone, coal, salt, gypsum.*Origin and classification of the crystalline rocks*.—Volcanoes ;  
their action and the rocks produced by them. Minerals :  
quartz, feldspars, mica, augite, hornblende, olivine,  
calcite, salt, kaolin, serpentine. Textures of the  
crystalline rocks : Chief types of volcanic rocks ;  
rhyolite, trachyte, obsidian, pitchstone, pumice,  
andesite, basalt and tachlyte ; clastic volcanic rocks.  
Chief types of plutonic rocks ; granite, syenite, diorite,  
gabbro, dolerite.*Rock structures*.—Folds, faults, cleavage, joints ; mineral  
veins.

*Arrangement of rocks in the earth's crust ; geological maps and sections.*

*Foliated, metamorphic and altered rocks.*—Gneiss, granulite, schist, quartzite, porcellanite, marble ; minerals of metamorphism, chiastolite, mica, garnet ; contact and dynamic metamorphism.

### Historical Geology.

*Introductory.*—The laws and generalizations of *Stratigraphy* and *Palæontology* : *Fossils*, their mode of petrification, and uses in Geology : The order of superposition : The Geological Record.

*The Eozoic Era.*—General physical characters and relationships of the *Pre-Cambrian* Rocks.

*The Protozoic Era.*—General characters of the rocks and fossils of this era : Outlines of the classification of the formations and organic remains of the *Cambrian*, *Ordovician*, and *Silurian* systems in Britain.

*The Deutozoic Era.*—Chief characteristics of strata and organic remains of British rocks of this era : The *Devonian* and Old Red Sandstone period : The *Carboniferous* system of Britain ; its main divisions and fossils ; chief British coalfields and their economic products : The *Permian* rocks, and their peculiar phenomena.

*The Mesozoic Era.*—Physical features of the *New Red Sandstone* rocks of Britain and Germany : British salt producing districts : The *Jurassic* formations and their ironstones, building stones, and most abundant fossils : The *Cretaceous* rocks, conditions of their deposition and life.

*The Cainozoic Era.*—Contrasts between Mesozoic and Cainozoic life : Chief divisions and zoological features of British *Tertiary* rocks : Crust disturbances during Tertiary time.

*The Glacial Epoch.*

### Local Geology.

Summer Term. — *Lectures and Demonstrations* by arrangement.

Outlines of the geology and physiography of the Birmingham District. In addition to the lectures the students attend the series of excursions on Saturday afternoons during the Summer Term



## II.

*Lectures* (Winter and Spring Terms).—Mondays, Wednesdays, and Fridays, at 9.30. (Summer Term)—By arrangement.

*Laboratory*.—Tuesdays, at 10.30 and 11.30, and one reading hour weekly, by arrangement.

FEE:—£4 4s.

(a) **Petrological.**

The description and determination by chemical, physical, and microscopic tests of the chief rock-forming minerals : study and recognition in hand specimens and thin slices of the chief rock types : practical determination and explanation of rock textures : methods of occurrence and distribution in space and time of these rocks, and the structures characteristic of them.

(b) **Structural.**

The structure and relations of rock masses in the field and on a large scale : study and interpretation of maps and sections : principles of geological surveying : relationships of rock structure to the relief and economics of a country.

(c) **Stratigraphical.**

The stratigraphy, palæontology, and distribution of the geological formations of Britain ; their chief representatives abroad : The geological systems and their subdivision into series and stages : The life of the systems : Characteristic fossils and principles of correlation : Physical geography of the geological periods : Volcanic history of Britain : Landscape, physiography, and economic products connected with the rocks of the different systems : Physiographical geology in general, and in its application to two or three typical districts.

(d) **Areal Geology.**

A detailed study of the stratigraphy of certain definite areas in the Midlands considered as types : The development of their different rock-systems ; their inter-relations and fossils. In addition to attending the Lectures the students study the selected areas in the field, making one field excursion each week during the Summer Term.

## III. A.

## APPLIED GEOLOGY.

Lecture and Laboratory hours by arrangement.

FEE:—£4 4s.

### 1. The Economic Geology of Britain.

*Water*: Overground supplies; drainage areas, reservoirs; sanitation; underground supplies; springs, wells, drainage areas, calculation of resources, effects of rock-structure and surface configuration, contamination, &c. *Building Materials*: Stone, brick-clay, slate, cement; testing; distribution and qualities of building materials; ornamental stones; road metals; building sites. *Fuels*: Position, and succession of coal-bearing rocks; *Coal* and coalfields; distribution of coals; the Midland coalfields; structure and correlation of coalfields; hidden coalfields; petroleum. *Ores*: Characters and distribution of the chief metalliferous minerals; nature and structure of the chief kinds of ore deposits; chief ore-bearing districts in Britain.

### 2. Field Geology.

The methods and practice of geological surveying as applied to some single district: relief of the ground; succession of rocks; delineation of rocks on maps; relative resistance of rocks to denudation; effect on the physiography, and its use in elucidating underground structure; working out of structure from surface indications; preparation of vertical and horizontal sections; detection of faults and unconformities and their economic results.

A special district is surveyed and mapped in detail. One whole day (Friday) in each week is devoted to this work in the Summer Term.

Knowledge of the stratigraphy of the district covered is accepted, in lieu of the stratigraphical and areal geology of Course II, from those students who take Course III A for their degree subject.

## III. B.

## BIOLOGICAL GEOLOGY (PALEONTOLOGY).

Lecture and Laboratory hours by arrangement.

FEE:—£4 4s.

## 1. General Palæontology.

The nature and preservation of fossils: The general succession of life as revealed by the geological record; the imperfection of the record; a special study of the hard parts of each of the principal classes of the invertebrata and cryptogamia; the structure, classification and range of the chief families and their most important genera; a general knowledge of the fauna and flora of the geological systems.

## 2. Detailed Palæontology.

*A detailed study of one of the fossil orders of the invertebrata or cryptogamia; or of the fauna or flora of some one geological system and its divisions.*

## III. C.

## PETROLOGICAL GEOLOGY (MINERALOGY AND PETROGRAPHY).

Lecture and Laboratory hours by arrangement.

FEE:—£4 4s.

## 1. Mineralogy.

Form and structure of Minerals; nature of crystalline form; systems of crystalline form; isomorphism; pseudomorphism: Chemical composition of Minerals: Classification of Minerals: Description and determination of minerals by microscopic, chemical, and physical tests; crystal optics and the use of convergent, plane, and polarised light.

## 2. Petrography.

Classification and determination of rocks by microscopical, physical, and chemical means in hand specimens and rock-slides; study of the occurrence and distribution of rocks in Britain and the principal and typical foreign localities; principles underlying the genesis and classification of rocks; dynamical and thermic metamorphism of rocks.

## IV.

## HIGHER STRATIGRAPHY, PALÆONTOLOGY AND PETROLOGY.

Lecture Days and hours by arrangement.

FEE for each Term :—Lectures and Laboratory (four hours weekly), £2 2s.

This Course is projected for candidates for the degree of M.Sc., and for those who desire to study in detail the Petrological, Historical, and Biological aspects of Geology. The Course extends over one year, the student taking up the several sections of the subject in sequence, and accompanying each stage by a study of the books and publications in the College Library, and of the illustrative series of fossils and rocks in the College Museum. During the third Term the pupil prepares a Thesis upon some selected subject in Petrology, Geology, or Palæontology.

## V.

## RESEARCH WORK IN GEOLOGY AND PALÆONTOLOGY.

Advanced students who have completed their systematic College Courses, students who have obtained the degree of M.Sc. and are preparing for the Doctorate, and occasional geological students, British or Foreign, studying some special branch of Geology or Palæontology, work in the Museum and Laboratory in College hours during term time, under the direction of the Professor and Assistant Professor, with use of the collections and microscopes.

The chief subjects at which such students may work include (1) Graptolites, Trilobites, Brachiopoda, &c., British and Foreign; (2) Field Geology and Geological Mapping; (3) Petrography.

The large collections of rocks and fossils in the College Museum from the older rocks, the range and variety of the geological formations in the Birmingham District,

and the proximity and availability of the classical geological ground of the West of England, afford research students especial opportunities and facilities for the prosecution of original work.

FEE for each Term :—£2 2s.

## VI.

### PRACTICAL WORK.

#### LABORATORY CLASSES.

In connexion with the foregoing Courses, Practical classes are held in the Geological Laboratory, upon such days and hours as are found most convenient to the students. The instruction given has reference to the actual study and examination of the minerals, rock-specimens and fossils noticed in the lectures ; the methods of mounting, and determining of fossils ; the preparation of rock specimens for the microscope and cabinet ; the drawing of figures, maps, sections, &c.

Persons not attending Lectures, but wishing to work in the Geological Laboratory and Museum, can do so at all times when open, on payment of a terminal fee of £2 2s., or for two hours weekly, 10s. 6d. each term. Such students will be encouraged and assisted in the prosecution of their private studies or original work.

For Vacation Reading, see p. 306.

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#### REQUIREMENTS FOR DEGREES.

*B.Sc. Degree.* 1. Geology as the *principal* subject ; Course I in the first year ; Course II in the second year together with part A, B, or C in Course III.

2. Geology as a *subsidiary* subject :—

(a) One year, Course I.

(b) Two years, Course I and Course II.

*B.A. Degree.* Geology as a *subsidiary* subject :—

(a) One year, Course I.

(b) Two years, Course I. and Course II

TIME TABLE.

GEOLOGY.	Mon.	Tues.	Wed.	Thurs.	Fri.
<i>Winter and Spring.</i>					
Course I. ... ..	10.30	...	10.30	...	10.30
Demonstrations ... ..	...	9.30	...	9.30	...
Course II. ... ..	9.30	...	9.30	...	9.30
Laboratory ... ..	... {	10.30 11.30	...	...	...
Course III, IV, V, VI. ...	...	<i>(By arrangement).</i>			...
<i>Summer Term.</i>					
(Hours by arrangement.)	...	...	...	...	...



## ECONOMIC GEOLOGY.

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This Course is projected for those who are unable to attend a complete systematic Course in Geology, but who are desirous of knowing the principles and practice of the science in so far as they can be utilised in business, professional and every-day life.

This Course will commence with a section dealing with the fundamental facts and principles of Geology. This will be followed by sections dealing with Geology as applied to water-supply, sanitation, agriculture, &c., and a further group of sections dealing with the application of geology to architecture, mining, &c.

Section I. must be taken by all. The remaining sections are elective.

Each Section will include about ten lectures and demonstrations, two hours a week, during the Winter and Spring Terms. Hours by arrangement.

FEE for each Section :—10s. 6d.

### WINTER TERM.

I. *The Outlines of Geology*.—The rocks and rock formations; geological maps and sections, their interpretations and uses. *Winter Term*.

II. *Geology and Water Supply*.—

(a) Overground waters and their action and employment; drainage, sanitation, overground water supply, reservoirs.

(b) Underground waters and water supply, water-bearing rocks and formations, springs, wells, hard and soft waters. *Winter Term*.

### SPRING TERM.

III. *Geology and Architecture*.—Chief British building stones, their characters and distribution; fire-clays; brick-clays; cements; building sites; road metals. *Spring Term*.

- IV. *Mining Geology*.—Fuels of Britain ; the coal-fields ; coal and coal-mining, &c. ; ores and ore-bearing formations ; chief ore-bearing districts of Britain and the Colonies.  
*Spring Term.*

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## PHYSIOGRAPHY.

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### Elementary Physiography.

(For Matriculation Examination.)

*Lectures*.—Tuesday and Thursday, at 3.30, during the Winter Term, and the first half of the Spring Term.

**FEE** :—£1 11s. 6d.

*The Earth* in its relation to the other bodies in the Solar System : The form and size of the globe ; its movements and their effects in day and night, the seasons, eclipses.

*The Surface of the Earth* : General distribution of land and water ; the contour, relief, and chief features of the continental land areas.

*The Atmosphere* : Its composition and density ; the determination, distribution, and representation of its temperature and pressure ; the circulation of the air, permanent and periodic winds, storms ; the moisture of the air, dew, hoar-frost, fog, mist, clouds, rain, snow and hail ; general distribution of rainfall and its causes ; weather-charts and storm-warnings ; climate.

*The Sea* : Composition, specific gravity, and temperature of sea-water ; depths of the ocean, form and deposits of its floor ; movements of the ocean-water, waves, tides, and currents.

*The Land* : The chief constituents of the earth-crust, stratified and unstratified rocks ; the work of rain, frost, rivers and ice ; springs, glaciers, valleys, water-falls, lakes, meadows, deltas ; earth-movement and earthquakes ; volcanoes, their phenomena and distribution.

*Life* : The geographical distribution of animals and plants ; biological regions.

### Advanced Physiography.

*Lectures.*—Monday, at 3.30, and Tuesday, at 9.30, during the second half of the Spring Term and the whole of the Summer Term.

FEE for the Course :—£1 11s. 6d.

*The inter-relation, composition, movements, and origin* of the earth, moon, planets, fixed stars, and other celestial bodies ; the bearing of spectrum analysis on these investigations ; the nebular and meteoric theories.

*The mass and density* of the earth : The condition of the interior.

*Latitude and longitude* : Their use and determination ; globes, maps, and projections ; terrestrial magnetism.

*The precession of the equinoxes*, and the revolution of the apsides and their effects.

*The Atmosphere* : Light and colour ; atmospheric electricity ; climates, and their distribution in space and time ; glacial and genial climates.

*The Hydrosphere* : Classification, history and origin of the ocean-basins ; tides in their relation to planetary evolution ; life in the oceans ; coral reefs.

*The Lithosphere* : The composition, arrangement and history of the materials of the earth-crust ; formation of rocks ; crust movements and their effects ; theories of volcanoes and earthquakes, with regard to the state of the earth's interior ; relief of the lithosphere and its causes ; plateaux, mountains, plains.

*Landscape* : Origin and development of landscape features ; escarpments and drainage systems ; adjustment of streams ; divides ; terraces ; effects of earth movement ; youth, maturity, and old age of streams ; form and development of coast-lines ; history of landscape.

*The Physiography* of the continents, islands, and ocean basins.

*Biological Geography* : Classification of animals and plants ; ocean life ; terrestrial life ; causes of distribution : Distribution of the races of mankind : Man as a geographical agent.

## GEOGRAPHY.

## THE PRINCIPLES OF GEOGRAPHY.

## PHYSICAL AND POLITICAL.

This course of Lectures extends over two years, Physical and Political Geography being taken concurrently.

The first year course will embrace the more elementary portions of both branches of the subject ; the second year course, while dealing chiefly with Advanced Political Geography, will also treat of Advanced Physical Geography, and particularly with its application to the political side of the subject.

This course of lectures embraces (1) a summary of the chief facts known concerning the present *Surface Features*, and the grander *Natural phenomena* of the Earth upon which we live—its lands, its waters, its climates, and its inhabitants ; (2) a study of the *Agents of Change*, organic and inorganic, which have brought about the present form and characteristics of its visible surface, and the distribution and arrangement of its living creatures ; (3) a brief sketch of the *Past history* and changes of the earth's surface ; and (4) an investigation of the present relations of this surface to *Man and his works*, his industries, his commerce, his distribution and progress, in so far as they can be traced through the outlines of the Political Geography of the present day.

In other words, the special aims of the Lectures are :—First, to give the student a general knowledge of the present physical features, the climates and productions of the earth ; next, to show how all these probably came into being, and how they are in continual process of change and development ; and finally, to show how man himself is related to the phenomena of the earth upon which he dwells, how he has peopled its surface, and availed himself of its productions.

## Physical Geography.

This course includes about thirty Lectures on Elementary Physical Geography delivered to First Year Students on Tuesday and Thursday, at 3.30, during the Winter Term, and first half of the Spring Term, and about thirty Lectures on Advanced Physical Geography delivered to Second Year Students on Monday, at 3.30, and on Tuesday, at 9.30, during the second half of the Spring Term, and the whole of the Summer Term.

FEE:—£1 11s. 6d.

## SYLLABUS.

*(The Earth of the Present.)*

1. *The Terraqueous Surface* of the Earth in general; the distribution and forms of its land and water areas.

2. *The Lands of the Earth.*

The continents and islands; their boundaries, relief and chief physical features.

3. *The Atmosphere.*

1. The air, its constitution, temperature and moisture.

2. Rainfall, winds, storms, &c.

4. *The Waters of the Earth.*

1. The sea-waters and their composition, currents, tides and climatic effects.

2. Rivers and inland seas.

5. *The Inhabitants of the Earth.*

1. *Plants.* Their classification and distribution.

2. *Animals.* Their relationship and arrangement. Biological Provinces.

6. *Agents of Change*, acting on the present surface of the Earth.

1. *Internal.* Volcanoes, Geysers, Earthquakes, Secular Upheaval and Depression.

2. *External.*

a. *Destructive*—air, frost, ice, wind and weather. Sea waters: rain and rivers.

b. *Constructive*—sands, deltas, lakes and sea deposits.

*(The Earth of the Past.)*

1. *The Record of Past Changes* in the Surface and Life of the Earth as seen in—



1. *The Earth Crust.*

- a. Its materials—minerals and rocks. Strata and their dislocations.
- b. The Geological Formations and Fossils. Classification, life types. Physiographical features of the formations.

2. *The evidences of the Ice Age, and of the Antiquity of Man.*

2. *The Origin, Development, and present state of the more important features in the Relief and Life of the Earth.*

1. *Mountain Ranges*—Plateaux, Plains, Deserts, &c.2. *River Basins*—Cañons, Waterfalls, Lakes, &c.3. *Life Provinces* and their animal and vegetable peculiarities.

TEXT BOOKS RECOMMENDED.—*Junior*: Page and Lapworth; Introductory Text Book of Physical Geography (Blackwood). Morgan; Elementary Physiography (Longman). Simmons; Physiography for Beginners (Macmillan). Philip's Class Book of Physical Geography (Philip). Mills Realm of Nature (Murray). *Senior*: Hinman; Eclectic Physical Geography (Sampson Low). Davis; Physical Geography (Ginn).

### Political Geography.

This course includes about thirty Lectures on Elementary Political Geography delivered to First Year Students on Tuesday and Thursday, at 3.30, during the second half of the Spring Term, and the whole of the Summer Term, and about thirty Lectures on Advanced Political Geography delivered to Second Year Students on Monday, at 3.30, and Tuesday, at 9.30, during the Winter Term, and the first half of the Spring Term.

FEE :—£1 11s. 6d.

The object of this course is to afford the student a broad view of the facts and principles of Political Geography in general, and to show how these facts and principles are illustrated and employed in the detailed study of one or more typical countries in each of the grander divisions of the globe. Commencing with a brief description of Man in general, his races, languages, industries, &c., the lecture course treats of the chief geographical and political divisions of the globe in order. Each of the great continental divisions, its physiography, productions, peoples, and political sections is developed in outline, and two or more of its most typical countries worked out in further detail. In Europe, the British Islands are primarily selected for detailed study, and in other parts of the world chief regard is paid to the British colonies and dependencies.



The following is a general syllabus of the course :—

*(The Earth and Man.)*

1. *Man in General.*—(a) *Races of Mankind*; (b) *Languages*; (c) *Modes of Existence*; (d) *Trades and Commerce*; (e) *Grades of Civilisation*; (f) *Modes of Government*.

*(The Countries of the Earth.)*

2. *Europe.*—(a) Europe in general, its divisions, physiography, countries, chief cities, inhabitants, and productions.

(b) British Islands, relief, climate, products, industries, towns, trade, divisions, and government.

(c) France; (d) German Empire; (e) Russian Empire.

3. *Asia.*—(a) Asia in general; (b) India and other British possessions; (c) China; (d) Turkish Empire.

4. *Africa.*—(a) Africa in general; (b) Egypt; (c) British Africa.

5. *America.*—(a) North America in general; (b) British America; (c) South America in general; (d) Brazil.

6. *Australasia.*—(a) Australasia in general; (b) Australia; (c) New Zealand.

TEXT BOOKS RECOMMENDED.—Keith Johnson; A School Physical and Descriptive Geography (Stanford). Meiklejohn; A New Geography (Holden).

## AFTERNOON CLASSES.

### The Outlines of Geology.

#### *Winter and Spring Terms.*

During the Winter and Spring terms, a Course of about Twenty Afternoon Lectures (ten in each term) is delivered on the Outlines of Geology.

These Lectures are of a popular and untechnical character, and present a summary of the chief principles, methods, and conclusions of the Science of Geology. They are illustrated by a series of diagrams, rock specimens, and fossils. This course is

intended for beginners in Geology, for amateurs, for those persons of leisure who desire a knowledge of the outlines of the Science, for ladies, and for those who intend to join the Summer Excursion Class.

Admission to the first lecture free.

### SYLLABUS.

#### WINTER TERM. (PHYSICAL GEOLOGY.)

*Lecture Hour.*—Thursday, at 2.30 p.m.

*FEE* :—12s. 6d.

1. *The Exterior of the Earth-Crust.*

Form and size of the Earth; the atmosphere; oceans; the land and water areas of the globe.

2. *The Materials of the Earth-Crust.*

Rock-forming minerals, rock structure, classification of rocks.

3. *Agents concerned in altering the form and structure of the Earth-Crust.*

(a) *Internal.*—Volcanoes, Geysers, Earthquakes, &c.

(b) *External.*—

*Destructive* : The air, rain, rivers, frost, glaciers, the sea.

*Re-constructive* : The atmosphere, rivers, lakes, plants, animals.

4. *Architecture of the Earth-Crust.*

(a) *The Sedimentary rocks.*—Their stratification, jointing, inclination, contortion and faulting.

(b) *The Igneous rocks.*—*Intrusive* : granites, porphyries, &c.  
*Contemporaneous* : lavas, tuffs, and ashbeds.

(c) *The Altered rocks.*—Their cleavage, contact-metamorphism and regional-metamorphism.

(d) *The Mineral Veins* and ore beds.

TEXT BOOKS RECOMMENDED.—Watts; *Geology for Beginners* (Macmillan); Lapworth; *Intermediate Text Book of Geology* (Blackwood). Judd; *The Student's Lyell* (Murray).

#### SPRING TERM. (HISTORICAL GEOLOGY.)

*Lecture Hour.*—Thursday, at 2.30 p.m.

*FEE* :—12s. 6d.

1. *The Life of the Present.*—Classification of animals and plants; distribution of life forms; theories of biological evolution; mode of preservation of animal and vegetable remains.

2. *The Geological Record*.—History of geological discovery ; principles of chronological classification of formations ; the history of the geological record.
3. *The Fundamental Rocks*.—The crystalline formations ; their extent ; richness in minerals, and barrenness of life.
4. *The Dawn of Existence*.—The primeval islands and shallow seas of Western Europe ; their prolific and remarkable forms of animal life.
5. *The Continental Period*.—The western mountain ranges, and great British lakes of Old Red Sandstone time ; the coral banks and fern forests of the Coal period ; the great salt-lakes and sandy deserts of the Permian and Trias.
6. *The Great Depression*.—The coral-reefs of the Jura and the Midlands ; gigantic sea lizards and Ammonites. The vast ooze-covered sea-floor of the Chalk.
7. *The Re-emergence*.—The gradual development of the Old World ; formation of the Alps and Himalayas. The British Andes, volcanoes and plant life ; warm climates and remarkable mammalian life of Tertiary time.
8. *The Age of Man*.—The Ice period, its ice sheets and glaciers, appearance of early man, disappearance of the mammoth and its contemporaries, progress of man through pre-historic times.
9. *The Evolution of the Earth Crust*, and the life types with which its surface has been successively peopled.

ADDITIONAL TEXT BOOK RECOMMENDED. — Jukes-Browne : *The Building of the British Isles* (Bell).

## Local Geology and Excursion Class.

### SUMMER TERM.

#### GEOLOGY OF BIRMINGHAM AND DISTRICT.

The main object of this course is to afford the student a practical knowledge of the geological structure of the neighbourhood of Birmingham and of the Midlands generally. The various geological formations found within thirty miles of Birmingham are described in a series of Lectures, illustrated by typical rocks and fossils.

Upon every Saturday when practicable, Excursions are made by the members of the class to the more important geological localities of the district, and the visible phenomena studied in the field.

The members of this class are encouraged and assisted in the collection, determination and preservation of representative rocks and fossils.

This class is intended not only for ordinary students of the science, but also for amateurs and persons of leisure, ladies, collectors, miners, architects, and for all those who take an interest in the geology of the district.

*Lecture Hour.*—Thursdays, at 2.30 p.m.

**FEES** for the Course:—Excursions and Lectures, £1 1s.; Lectures only, 12s. 6d.

**TEXT BOOK RECOMMENDED.**—Lapworth, Watts, and Harrison; A Sketch of the Geology of the Birmingham District (Stanford).

#### GEOLOGICAL EXCURSIONS.

As a general rule the Excursions take place on Saturdays after 1.0 p.m. A few whole-day excursions are made by arrangement among the members of the class.

**FEE** for the Excursions only:—£1 1s.

#### Advanced Geology.

##### *Winter and Spring Terms.*

An afternoon Class in Advanced Geology will also be formed during the Winter and Spring Terms.

*Lecture Hour.*—Thursdays, at 3.30 p.m.

**FEE**:—12s. 6d. for each Term.

The lectures in Advanced Geology deal with some special aspect of the science (*a*) in which research is still in progress, (*b*) which is of interest from the theoretical point of view, or (*c*) which is related to the advancement of other sciences. Among the subjects already treated of are (1) Geology and Scenery, (2) the Relief of the Globe, (3) Earth and Man, (4) Palæontology and Evolution, (5) the Protozoic Systems.

The following is a sketch Syllabus of the courses delivered in 1898-1901 :—

### TECTONIC GEOLOGY.

#### *Outlines of the Tectonics of Britain.*

*Geological Succession.*—The stratum, formation, system, period and cycle.

*Geological Elevation.*—Horizontal and inclined formations, the anticline, syncline and geological fold; creep, trend, and pitch of fold.

*Geological Degradation.*—River erosion, surface denudation; differential denudation; the typical unit of surface shape the wold with its scarp and terrace; differential marine erosion with bay and headland.

*Type Basin of the Thames Valley.*—Origin and development of its formations and scenery; geographical and human relationships. The basins of the Seine, Po, Mississippi, Amazon. (The sub-horizontal regions of Russia, Siberia and North America.)

*Type Dome of the Weald.*—The rock formations, differential denudation, scenery, wold and down structure, development and human relationships.

*The Pennine Anticlinal,* its flanks and skirting lowlands. *The English Midlands.*

Fold region of *North Wales* and the West of England. The four crust-creeps of Britain. The region of the *Caledonian* crust-creep. The *Armorican* fold region. Areas affected by the *Charnian* and *Malvernian* trends.

#### *Crust Deformation of the Earth in general.*

*Modes of Deformation* and yieldage of bodies by flowing, folding and fracture. The *Fold Theory* or reciprocal theory of geological deformation. The type fold with its positive and negative (antilogous or reciprocal) elements of arch and trough. The sag and the buckle. Analogies and gradations between the fold with its septum, the flexure, the fault with its sectum or plane



of dislocation ; the wave surfaces of liquids and the wave forms of the physicist. Superposition, interference, composition of wave and fold shapes. Torsion ; sheaf and pencils of fractures ; deformation in three dimensions ; the fold line or elastic curve, zero surface, &c. Illustrations from engineering structures, experiments, &c.

The *Compression Theory*, radial collapse of ocean floor and tangential compression of continental masses. Horst and Graben. Theory of *Isostasy*, *Flow Theory*, &c. Local, regional, continental movements, orogenic and epeirogenic effects, transgression and regression, differential yieldage and its effects ; stabile and labile regions.

Deformation phenomena (*Eidography*) of the globe, the geoid, the eidosphere (land and water hemispheres), the four guiding lines or trends of the lithosphere parallel and diagonal to the lines of latitude and longitude ; the homologous and antilogous characters of the continents and ocean basins ; the cycloidal island chains and mountain ranges ; distribution of earthquakes and volcanoes.

The *Eidography of Europe*, the Scandinavian and Alpine arches and the Baltic and Mediterranean troughs and their inter-relations ; the Russian and Saharan stablelands ; the Alpine system and its history. General eidography of *North America* and the Canadian shield ; Mississippi basin and bordering fold regions. *Eidography of the Old World* ; the Deccan, its marginal plains. Asiatic mountain systems.

### *Eidographic History of Britain.*

History of the British geological systems as illustrated by the present eidographic phenomena of the globe.

#### THE ARCHEAN CYCLE :—

*Pre-Cambrian Period.*—Sediments of the Longmynd and the Torridonian, Volcanic phenomena of the Uriconian.

#### THE PALÆOGEAN CYCLE :—

*Protozoic Marine Period.*—Dominance of the Caledonian Creep. The Cambrian depression ; volcanic and festoon islands and intermediate deeps of the Ordovician elevation ; the great Silurian transgression..



*Deutozoic Continental Period.*—Regional elevation of Old Red time, its orogenic, volcanic and lacustrine phenomena. Lower carboniferous depression. Irruption of Armorican creep from the south, early effects of movements in formation of coalfields, &c., culminating effects in orogenic movements of Permian, land areas of New Red.

THE NEOGEAN CYCLE :—

*The Mesozoic Period.*—Commencement of marine depression in Keuper-Rhætic, continuation through Jurassic; medial elevation of Purbeck-Wealden-Greensand time; maximum depression of the Chalk, Cenomanian transgression. (Geological phenomena of Gondwana land and the S. Hemisphere generally, their antilogous relationship to the calm of the British Mesozoic; origin of Indian Ocean, &c.)

*The Cainozoic Period.*—Revival of crust movements in Britain and Europe generally in early Tertiary. Alpine crust creep, Tertiary volcanoes and dykes, Tertiary basins. The Alpine and Himalayan chains. The Glacial epoch and its effects; regions marked by drift and erratics, post-glacial movements, problem of the Antarctic Continent.

The Subject of the Advanced Lectures during 1901-1902 was "The Face of the Globe," by E. Suess.

## ENGINEERING.

CIVIL, MECHANICAL, AND ELECTRICAL.

*Professor*: F. W. BURSTALL, M.Sc. ; M.A. (Cantab.), M.I.C.E.,  
M.I.M.E.

*Lecturer on Civil Engineering*: F. H. HUMMEL, A.M.I.C.E.

*Lecturer on Mechanical Engineering*: R. C. PORTER, M.Sc.

*Lecturer on Electrical Engineering*: D. K. MORRIS, Ph.D.,  
A.M.I.E.E.

*Assistant Lecturer*: C. A. SMITH.

*Instructors in Iron-work*: F. H. A. HALL; W. R. CHURCHWARD.

*Instructor in Wood-work*: T. D. GARSCADDEN.

### INTRODUCTION.

The full courses extend over four years, and students who enter after matriculation and who pass successfully the examinations at the end of each year will be entitled to the degree of Bachelor of Science in the branch of Engineering to which they devote themselves. Students who are unable to take a full course will be admitted to the classes as far as room permits, and on leaving the University will receive a certificate stating the courses they have taken and their position in the examinations.

The training throughout the course is largely practical and experimental in its character; the University workshops are equipped with the most modern tools, and practical instruction is given in both wood and iron work, by means of a graded series of exercises. In the later part of the course attention is directed to experimental work in the Engineering Laboratories, which are fitted with modern appliances for demonstration of the principles underlying engineering practice. The Mechanical Laboratory contains a large fifty ton testing machine for testing long specimens in tension compression and bending, hydraulic tanks, apparatus for determining the friction in pipes, cement testing plant, impact machine, Journal friction testing machine, compound experimental steam engine fitted with independent condensing plant, an experimental gas engine.

During the Summer Term there is a course of instruction in Practical Surveying.

The Electrical Engineering Laboratory is provided with appliances for all classes of electrical testing work. Direct current at 110-volts is supplied from the 220-volt city mains by an  $8\frac{1}{2}$ -unit transformer, made by the Electric Construction Company, and a constant pressure of any required value for testing purposes is furnished by a 110-volt 240 ampere-hour battery. In addition to several small machines, the laboratory contains two 5-kw., 110-volt Chamberlain and Hookham dynamos, two 2-phase Parker alternators of the same output; a 2-kw. E.C.C. motor-driven booster; a Westinghouse  $7\frac{1}{2}$ -kw. converter giving direct or 2 or 3-phase alternating currents; two 3h-p. induction motors, single and 2-phase; Kapp and Berry transformers; and complete controlling arrangements. A Photometric Gallery provides for arc and glow lamp testing. A separate room is reserved for standardising of instruments, testing of insulation, magnetic qualities, etc. The electrical instruments include a considerable number and variety of the best known modern types of switch-board and other instruments, wattmeters, and electricity meters for continuous and alternating currents.

The course for Electrical Engineering students is the same as that for mechanical engineers for the first two years, and only differs in the third and fourth years in the increased time spent in the electrical engineering laboratory and on the design of examples of electrical machinery and apparatus.

Advanced students are encouraged to take up some line of investigation of technical interest, for which every facility is provided.

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## LECTURE COURSES.

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SECOND YEAR.

## I.

## DESCRIPTIVE ENGINEERING.

Tuesdays and Thursdays, 11.30 to 12.30, throughout the Session.

FEE:—£2 12s. 6d.

The Lectures will include the description of tools and machinery used in Engineering, and will be illustrated by a large collection of lantern slides.

*Hand Tools for Wood and Iron.*—The plain lathe, engine lathe, slide rest, screw cutting, self-act and cross traverse, large lathes, special lathes (such as the capstan lathe), milling machine, planing machines, shaping machines, slotting machines, drilling machine, sensitive and multiple drills, grinding machines, boring machines.

*Types of Boilers and Boiler Fittings.*—Cornish, Lancashire, vertical, locomotive, marine, water tube, feed heaters, economizers, super-heaters.

*Steam Engine parts.*—The cylinder, slide valve, piston, stuffing box, kinds of packing, crosshead, guides, connecting rod, crank shaft, eccentric, bearings, lubrication, flywheels, cocks and valves.

*Types of Steam Engines.*—Mill engine, locomotive, marine, high speed, pumps and pumping engines, duplex pumps, feed pumps, centrifugal pumps.

*Gas and Oil Engines.*—Otto cycle, valves, governors, ignitors, Priestman oil engines, Hornsby oil engine, Diesal motor.

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## II.

## GRAPHICS AND GEOMETRY.

Mondays and Fridays, 11.30 to 12.30, throughout the Session.

FEE :—£2 12s. 6d.

(a) **Graphical Mensuration.**—Areas of polygons, closed curves, and surfaces. Volumes.

*Vectors.*—General properties, rules for addition and subtraction, position vectors.

*Mass Centres*, by vectors and other constructions. Points, lines, surfaces, and solids. Moment of Inertia.

(b) **Graphical Statics.**—Derivation of vector and link polygons, and conditions of equilibrium using these. Supporting forces. Force diagrams for roofs and girders. Diagrams of bending moment and shearing force. Maximum bending moments and shearing forces for rolling loads. Arches and chains in equilibrium. Problems in hydrostatics.

(c) **Kinematics of Machinery.**—The tracing of point paths. Definitions, pairs, chains, instantaneous centres, centrode, axode. Velocities (angular and linear) in four bar mechanism, and slider crank chain. Velocity and acceleration curves in general. Special mechanisms.

## III.

## GENERAL ENGINEERING.

Mondays, Wednesdays, and Fridays, 9.30 to 10.30, throughout the Session.

FEE :—£3 13s. 6d.

**Elementary Course on strength of materials.**—Including the behaviour of ductile materials in tension, yield point, resilience, stress-strain curves, impact, repetition of stress, Wohler's laws, tensile strength of various materials, iron, steel, brass, copper.

*Compression.*—Long and short columns, Enler's and Gordon's formulae.

*Bending.*—Neutral axis, moment of resistance, moment of inertia, graphic methods, calculating of the strength of box girders, joists, angles, ties.

*Shear.*—Single and double shear, modulus of shear, riveted joints.

*Tension.*—Strength and stiffness of hollow and solid shafts.

*Complex Stresses.*

**Hydraulics.**—General properties of fluids, relations between head, pressure, and velocity, discharge over weirs and through orifices, Bernouilli's theorem, fluid friction, friction in pipes, loss of head due to changes of section, hydraulic gradient.

**Elementary Theory of the Heat engine,** laws of heat, properties of air, specific heat, Carnot cycle, properties of steam, latent heat, perfect steam engines, actual engines, behaviour of steam in the cylinder.

**Machine Design.**

*General Principles*—Properties of materials. Straining actions. Stress, physical constants for ordinary materials, factors of safety, working stress for dead and live loads.

*Fastenings, Screws.*—Standard forms and dimensions of threads, multiple threaded screws. Screw bolts, studs, set screws.

*Keys and Cotters.*—Forms of keys. Taper and dimensions. Gib and cotter joint. Special precautions to be taken with alternating stresses, methods of adjustment and fastening.

*Riveted Joints.*—Proportions of rivets, riveting, punching, drilling, caulking. Forms and proportions of joints. Shearing resistance of rivets and tenacity of plates before and after riveting, calculation of pitch. Arrangement of groups of rivets in ties, etc. Graphic method of designing joints. Efficiency of joints.

*Boilers.*—Thickness of shell, junction of plates, stays, angles.



*Pipes and Pipe Joints. Transmissive Machinery.*

*Shafting and Couplings.*—Strength of shafts, twisting moment and transverse loads, variation in twisting moment. *Couplings.*

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### THIRD YEAR.

#### IV.

#### CIVIL ENGINEERING.

Tuesdays and Thursday, 9.30 to 10.30, throughout the Session.

FEE:—£2 12s. 6d.

*Surveying.*—Adjustment of instruments, levelling, contouring, surveying with theodolite. Railway works, surveying and setting out. Contents of cuttings and embankments.

*Simple Constructional Work.*—Masonry and steel.

*Hydraulics.*—Theory and construction of water motors. Re-action and impulse turbines. Water supply. Storage and distribution. Flow in Rivers and Canals.

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#### V.

#### MECHANICAL ENGINEERING.

Tuesdays and Thursdays, 12.30 to 1.30, throughout the Session.

FEE:—£2 12s. 6d.

General theory of friction, applications, to rolling friction, chains, belts, transmission of power by ropes and belts, by gearing, link work, valve gears, Zeuner diagrams, trip gears, expansion gears, governors, flywheels, balancing of engines.

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#### VI.

#### ELECTRICAL ENGINEERING.

Mondays, Wednesdays, and Fridays, 11.30 to 12.30.

FEE:—£3 13s. 6d.

One hour each week is devoted to the working out of electrical engineering calculations and design.

*Magnetic Fields.*—Lines of magnetic force. Induced magnetisation. The magnetic qualities of iron and steel. Hysteresis. Permeability.

*Electric Currents.*—Their direction and magnitude as derived from their magnetic, thermal and chemical effects. Lateral force on a wire carrying current in a magnetic field; work done by its motion. Electrical and magnetic units. Measurement of electrical work and power.

*Electrical Resistance.*—Current density and “drop” in conductors. Three-wire system. Insulation and laying of cables. Standard of conductivity. Specific resistance. Temperature changes. Design and construction of resistances for the absorption of power. Standards of resistance and electromotive force. Test room measuring instruments and methods. Simple tests of conductivity, insulation and capacity. Testing sets.

*Direct Reading Instruments.*—Classification. Details of construction of standard types. Elements of design of moving parts for greatest reliability and economy. Methods of checking and calibration. Electric Meters.

*Secondary Cells.*—Construction and treatment. Cells for high discharge rates. Central station batteries.

*Laws of Electromagnetic Induction.*—Unit of inductance. The telephone and induction coil. Eddy currents. Alternating currents, elementary treatment.

*The Magnetic Circuit.*—Ring magnets. Measurement of permeability and hysteresis. Magnetising force due to coils of wire. Reluctance.

*Dynamos and Motors.*—First principles of design. Ring and drum armatures. Bipolar and multipolar machines. Calculation of induced electromotive force. Field magnet winding, series, shunt and compound. Back electromotive force and speed of motors. Starting resistances. Speed regulation. Design of magnetic circuits of dynamo machinery. Tests for efficiency and separation of losses. Alternating current motors; simple theory of, and mode of construction and regulation.

*Central Stations.*—General account of arrangement and choice of plant and controlling devices.

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*FOURTH YEAR.*

VII.

CIVIL ENGINEERING.

Tuesdays and Thursdays, at 11.30 ; Wednesdays, at 10.30.

FEE:—£3 13s. 6d.

**Masonry Construction.**

Natural and prepared materials, foundations, piles coffer dams and caissons.

*Structures.*—Dams, retaining walls, abutments, culverts, and arches.

**Iron and Steel Construction.**

*General.*—Stress diagrams for dead and live loads, allowable stresses, classification of framed structures, roofs, loading and design of individual members.

*Bridges.*—Economy of type, parallel girders, bow-strings, arches, suspension bridges, cantilever and swing bridges. Columns.

**Water Engineering.**—Details of systems, of storage and distribution.

*Irrigation.*—Flood waters. River regulation, canals and inland transport.

*Tidal Works.*—Harbours, breakwaters, docks, piers.

General excavating and tunnelling.

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VIII.

MECHANICAL ENGINEERING.

Tuesdays and Thursdays, at 10.30 ; Wednesdays, at 11.30.

FEE:—£3 13s. 6d.

Advanced strength of materials, including general properties of stress and strain, composition of stresses,

strength of flat plates, strength of thick cylinders, stability of chimneys.

Advanced theory of the Heat Engine, including construction and use of entropy diagrams, Rankine cycle, working out of engine tests. Theory of the gas engine and expression of results, theory of the air compressor, general principles of refrigerating machines.

The transmission of power by air, electricity, water, gas, cost of power, load factor.

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## IX.

### ELECTRICAL ENGINEERING.

Tuesdays, Wednesdays, and Thursdays, at 9.30.

FEE:—£3 13s. 6d.

One hour each week will be devoted to the working out of designs and calculations of machinery and apparatus preparatory to electrical design in the drawing office.

Electric currents in inductive circuits.

The design of dynamos, motor transformers, and other continuous current machinery. Sparkless commutation. Brushes and holders. Bearings and foundations. Enclosed motors. Electric traction machinery, reduction gear, controllers, and electric brakes. Armature winding of bipolar and multipolar machines. Pre-determination of characteristics. Tests for efficiency and regulation.

Alternating currents. Derivation of fundamental formulæ. Graphical methods. Frequency. Impedance. Angle of lag. Power factor. Measurement of power in alternate current circuits. The Wattmeter. Transformers:—Graphical theory, design and tests for efficiency and regulation. Polyphase currents. Rotating magnetic fields. Synchronous and asynchronous motors. Starting and speed-regulating arrangements.

Central stations for lighting and power distribution. Merits of different systems. Switchboard fittings for low and high tension currents. Regulating resistances.

Cables. Meters. Calculation of feeders. Electric traction systems. Earth return. Rail bonding.

Alternating currents in circuits having inductance and capacity. Electrical resonance and oscillations. Use of condensers and reactance coils. Lightning arresters.

Alternators. Polyphase substation plant. Parallel running. Control of power factor.

Electrochemical Action. Heat of combination. Calculation of electromotive force required. Industrial application of electricity in chemistry and metallurgy.

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TEXT BOOKS RECOMMENDED.—Steam Engine, Cotterill; Steam Engine, Ewing. Applied Mechanics, Cotterill. Strength of Materials, Ewing. Testing of Materials of Construction, Unwin. Treatise on Bridge Construction, Claxton Fidler. Treatise on Masonry Construction, Baker. Hydraulics; The Article on Hydro-mechanics from the Encyclopedia Britannica, Unwin. Magnets and Electric Currents, Fleming. Dynamo Electric Machinery, Silvanus. Electrical Engineering, Slingo and Brooker. Alternate Current Working, Hay. Polyphase Electric Currents, Thompson.

### BREWING COURSE.

Mondays and Fridays, 10.30 to 11.30.

FEE :—£2 2s.

#### MACHINERY FOR HOISTING AND LIFTING.

Pulley blocks, screw and hydraulic jacks, windlasses, conveyors.

*Boilers.* Cornish, Locomotive, Lancashire, water tube. Heating value of coals, coke and oils, efficiency and the method of testing of boilers.

*Steam Engines.* Elementary theory, special descriptions of the types commonly used and recommended for breweries.

*Oil and Gas Engines.* Otto cycle, governors, ignition, valves and production of gas for motive power. Priestman and Diesel motors. Pumping machinery and piping used in breweries, methods of artificial production of cold, and machinery used for that purpose.

*Filtration.* General principles, types of filtration, beds, etc.

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## LABORATORY COURSES.

The laboratory course for third year students is arranged to train them in thorough and systematic methods of experimenting, while at the same time they are verifying the more important laws dealt with in the engineering lecture courses.

The principle upon which the laboratory work is done is that every experiment shall be made on the assumption that it has not been made before, and that the results have to be submitted for criticism to some one who has not seen the apparatus used. To carry this out the results of an experiment must be presented as follows :—

- (1) A description of the exact object of the experiment.
- (2) A full description of the apparatus used, and the way in which the readings were obtained.
- (3) Results of preliminary calibrations of measuring instruments.
- (4) Tabulated record of observed results.
- (5) Tables of deduced results.
- (6) Curves connecting the various important quantities.
- (7) A concise report on the experiment, giving probable accuracy, causes of discrepancies, &c. and generally summarising the whole experiment.

All results must be kept systematically in special note-books, and the student will be expected to send in with his finished work the book in which the original readings were taken.

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*THIRD YEAR.*

## GENERAL ENGINEERING LABORATORY.

Wednesdays, 2 to 5 throughout the Session.

FEE :—£4 4s.

The accuracy of measuring instruments. The inertia of rotating bodies. The laws of elastic deflection for tension compression, bending and twisting. The influence of bearing metal, lubricant, speed and pressure on the friction of journals. Friction and efficiencies of gearing,



toothed wheels, belts, chains, machines and lines of shafting. Behaviour of various materials in the testing machine. The effects of impact on elastic bodies. Cutting forces on tool-points.

*Hydraulics*.—The law of flow in pipes, and losses at bends and contractions. Flow through weirs and orifices. Tests of turbines and pumps. Simple tests of boilers, steam engines and gas engines. Determination of steam or gas consumption and efficiency.

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#### ELECTRICAL ENGINEERING LABORATORY.

Thursdays, 2 to 5, and Fridays, 2 to 5.

FEE :—£4 4s.

Mapping out magnetic fields. Carrying power of wires. Fuse testing. Exact comparison of electrical instruments. Measurement of resistance and conductivity. Comparative resistance of different coils of armature. Forces on currents in magnetic fields. Torque of motor at rest. Tests on arc and glow lamps. Meter testing and calibration. Capacity of storage cells at different rates of discharge. Measurement of insulation resistance. Tests on the properties of different kinds of direct current motors and dynamos. Determination of efficiency. Separation of losses in electrical machinery. Speed regulation. Wiring and jointing. Alternating currents, elementary tests.

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#### FOURTH YEAR.

##### CIVIL ENGINEERING LABORATORY.

Tuesdays and Thursdays, 10.30 to 5.

FEE :—£8 8s.

Impact of jets of water. Hydraulic gradient in long pipes. Tests of turbines and pumps, and other hydraulic machinery. Strength of concrete, brick columns, &c. Tests of large beams and struts. Friction of rollers and their crushing resistance. Deflection of continuous beams. Shape of chain under unsymmetrical loads. Strength of rivetted and pin joints, and friction of latter. Difficult problems with surveying instruments.

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## MECHANICAL ENGINEERING LABORATORY.

Thursdays, 11.30 to 5. Fridays, 9.30 to 5.

FEE :—£8 8s.

Elastic measurements in testing machine in tension, compression, bending and torsion. Tests of riveted joints. Action of repeated stresses on specimens of various shapes. Complete study of the steam engine. Effects of running, condensing or non-condensing, jacketed or unjacketed. Tests, single and compound. Series of tests varying loads. Effect of altering, cylinder ratio, receiver volume, clearance spaces, etc. Experiments on valve setting, and valve gears. Efficiency tests of boiler, and boiler and engine combined.

*Gas Engine.*—Variation of efficiency with load, richness of charge, and speed. Experiments with pumps, refrigerators and air compressors.

## ELECTRICAL ENGINEERING LABORATORY.

Mondays, 9.30 to 5 ; Tuesdays, 11.30 to 5.

FEE :—£8 8s.

In this Laboratory course, students will obtain practice in making accurate electrical measurements of every description, in testing electric meters, cables, lamps, batteries, samples of iron, &c., and in the testing for efficiency and regulation of all classes of continuous and alternate current machinery.

## SURVEYING.

## SECOND YEAR.

Wednesdays, 2.30 to 5.0. Spring and Summer Terms.

Field class, exercises with the simple surveying instruments, surveying with the chain, and levelling.

FEE :—£2 2s.

## THIRD YEAR.

Summer class in the field extending over five weeks.

FEE :—£5 5s.

## MACHINE DRAWING COURSES.

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*FIRST YEAR.*

## I.

Mondays, 2.30 to 5.

FEE :—£3 3s.

After a few exercises to familiarise the student with the use of scales and drawing instruments, he proceeds to make drawings of simple joints and machine parts. These drawings which are at first left in pencil, are in every case made from dimensioned freehand sketches, which the student himself makes from a model.

Great importance is attached to the necessity for entire completeness, both as regards form and dimensions in these sketches, and no reference to the model is allowed while the drawing is being made.

The models are taken in order of difficulty both of measuring and drawing, commencing with simple joints and fastenings and advancing to full sized models of machine parts. The latter involve various sections with appropriate colouring, the choice of views and sections being preferably left to the student.

Accuracy of measurement and dimensioning are insisted upon, together with neatness and clearness of the drawings.

The drawings have to be left to a uniform size, with a definite standard of lettering and dimensioning figures. Towards the end of the year, the student will be expected to make tracings on paper and cloth, and sun prints of some of his drawings.

On Mondays and Fridays from 10.30 to 11.30 in the Summer Term, there will be lectures and exercises on descriptive geometry, including representation of solids in various positions, sections of solids, interpenetration of solids, and isometric projection.

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*SECOND YEAR.*

## II.

Thursdays and Fridays, 2.30 to 5.

FEE :—£4 4s.

The second year course is a direct continuation of the first year one. The same methods are employed, but the models from which the drawings are made are more complex, and the student will eventually proceed to make drawings of complete machines, and also of parts of structures such as complex joints in girder or roof work, supports, foundations, &c.

He will be required to indicate on his drawings the parts which have to be machined, to pay attention, in fact, to the way in which the various parts would be produced in the workshop. He may also occasionally have to make calculations of the weights of various parts of the machine or structure that he is drawing.

Some part of the time for drawing in the second year will be devoted to practical exercises in connection with the lectures or solid geometry and the kinematics of machines, in the graphics course.

These exercises will enable the student to make when necessary drawings of machines from unsymmetrical points of view, and will introduce methods of setting out work relating to curved surfaces, on the flat, and will familiarise him with certain curves and constructions to be used later in machine design.

Apart from this geometrical work the whole aim in the first and second year drawing courses will be the production of working drawings in a workmanlike manner.

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*THIRD YEAR.*

## III.

## MACHINE DESIGN.

For Civil Engineers—Tuesdays, 2.30 to 5; Saturdays, 9.30 to 1.

FEE :—£4 4s.

For Mechanical and Electrical Engineers—Tuesdays, 2 to 5.

FEE:—£2 2s.

During the first and second years the student has only made drawings from existing machines, but in the third year his drawings are the results of calculations, wherever possible deduced from strength considerations, and in other cases from empirical formulæ based upon approved practice. It is a course in practical design; from the beginning the student is shown that there are parts of all structures where, owing to requirements of rigidity, or of convenience in use of manufacture, calculations for strength are not required. He is trained to discriminate between these, and those important sections, where strength is the only consideration and calculation a necessity. He thus only makes calculations for those parts where calculated value can be adopted, and for the rest must use his judgement, assisted in the beginning by empirical formulæ. It is considered very important that the student should be able to readily discover the *nature* of the forces acting everywhere, and that the allowable stresses should be derived for any case in a systematic way.

The course in general engineering will include lectures on machine design, and the drawings made will be based upon the substance of these lectures.

The course will include :—

*Fastenings.*—Bolts, nuts, keys, cotters, pipes and pipe joints, riveted joints, the civil engineering students giving more attention to the joints that occur in constructional work, and the others to joints in boiler and similar work.

*Machinery of transmission.*—Shafts, couplings, pulleys, bearings, belts, ropes, chains. Friction gearing spur and bevel wheels, helical and screw gearing.

After this may follow problems in which the strength considerations are more complicated, as in axles, journals, crank shafts, where bending and twisting moment diagrams are necessary.



In addition to the above the civil engineering students will take some simple designs bearing upon their special work, such as joints, trussed beams, bridge floors, pin joints, culverts, and sewer sections.

Electrical engineering students will during the third terms be required to make calculations and working drawings of such simple apparatus as the following:— switches and fuses for low and high tension circuits. Distributing boards, electro-magnets, the design of magnetic circuits and choking coils.

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#### *FOURTH YEAR.*

#### *IV.*

#### *MACHINE DESIGN.*

For Civil Engineers—Wednesdays, 11.30 to 5 ; Saturdays, 9.30 to 1.

FEE:—£6 6s.

For Mechanical Engineers—Wednesdays, 2.30 to 5 ; Saturdays, 9.30 to 1.

FEE:—£5 5s.

For Electrical Engineers—Saturdays, 9.30 to 1.

FEE:—£3 3s.

In the fourth year students largely specialise in their design work, the designs being based upon the special lecture courses.

The designs will be of a more complex character, and in all cases at least one complete design from specification and plans will be required.

The civil engineering students may take up any of the following:—

Masonry dams, arches and culverts. Retaining walls and abutments. Design of separate bridge members. Complete design of roofs and bridges. Water motors and water distribution. Mechanism of docks and locks.

The mechanical engineering students will deal with the following:—



Cylinders for steam and gas engines. Valves and valve gears of various types. Governors, fly-wheels, &c. Complete engines and boilers. Factory arrangements. Machine tools.

Electrical engineering students will, in addition to some of the above, be occupied in making calculations and designing a few of the following :—

Armatures and commutators. Complete shunt or compound dynamo. Induction motor. Series traction motor with controller. Transformers and boosters. Rotary converter. Alternators.

Examples of similar designs are previously worked out in the special course of electrical engineering lectures.

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### WORKSHOP COURSES.

FEES:—First Year, £9 9s.; Second Year, £8 8s.; Third Year, Civil, £3 3s., Mechanical and Electrical, £6 6s.; Fourth Year, Mechanical, £5 5s., Electrical, £4 4s. Summer Course, £5 5s.

NOTE.—The Workshop is open from 9.30 to 5, Saturdays 9.30 to 1, to those who wish to take up Special Courses, at a fee of £1 11s. 6d. per hour per Session.

The course of instruction in the workshop provides for both wood and metal work. In both shops the student has to go through a series of graduated exercises, arranged to familiarise him with all cutting and fitting operations, the properties of various materials, and the correct use of hand and machine tools.

The exercises, which are all made to dimensioned drawings, when completed are examined by the instructor and marked, and any exercise falling below a certain standard has to be repeated.

*Exercises in Woodwork.*—Sawing and parallel planing, halved joints, tenon, mortice, dove-tail. Frames involving several joints.

*Lathe Work.*—Turning to eye; pattern turning.

*Pattern Making.*—Glands, brackets, hand wheels, built up wheels with arms, slide valve, &c.

*Exercises in Metal Work.*

*Vise.*—Exercises in chipping and filing plane and curved surfaces.

*Lathe.*—Parallel turning; turning to shoulder; specimens for testing; screw cutting; chuck work.

Turning in cast-iron, wrought-iron, steel and brass.

Drilling and shaping exercises.

*Milling.*—Nuts, T-slots, taps, spiral milling cutters, reamers, &c.

*Fitting.*—Parts of engines and machine tools; face plate; slide rest, &c.

## REQUIREMENTS FOR DEGREES.

### FIRST YEAR.

For candidates in Civil, Mechanical, and Electrical Engineering:—

- (a) Engineering—Drawing and Workshop.
- (b) Mathematics—Course I (Pure).
- (c) Physics—Course I, with Laboratory.
- (d) Chemistry—Course I (A), with Laboratory.

### SECOND YEAR.

For candidates in Civil, Mechanical, and Electrical Engineering:—

- (a) Engineering—Lecture Courses I and II.  
Exercises.  
Drawing.  
Workshop.
- (b) Mathematics—Course II (Pure).  
Course I (Applied).

*THIRD YEAR.**A. For candidates in Civil Engineering :—*

- (a) Engineering—Lecture Courses III, IV, and VI.  
Laboratory (General).  
                  „ (Electrical).  
Drawing.  
Workshop.

(b) Geology—Course I, with Laboratory.

(c) Surveying (Summer).

*B. For candidates in Mechanical Engineering :—*

- (a) Engineering—Lecture Courses III, V, and VI.  
Laboratory (General).  
                  „ (Electrical).  
Drawing.  
Workshop.

(b) Physics—Course II, Part I.

(c) Metallurgy—Course I, with Laboratory.

(d) Workshop Class (Summer).

*C. For candidates in Electrical Engineering :—*

- (a) Engineering—Lecture Courses III, V, and VI.  
Laboratory (General).  
                  „ (Electrical).  
Drawing.  
Workshop.

(b) Physics—Course II, Part I.

(c) Workshop Class (Summer).

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*FOURTH YEAR.**A. For candidates in Civil Engineering :—*

- (a) Engineering—Lecture Course VII.  
Laboratory.  
Drawing.

(b) Geology—Course II, with Laboratory.

*B.* For candidates in Mechanical Engineering :—

Engineering—Lecture Courses VIII and IX.

Laboratory (Mechanical).

„ (Electrical).

Drawing.

Workshop.

*C.* For candidates in Electrical Engineering :—

Engineering—Lecture Courses VIII and IX.

Laboratory (Mechanical).

„ (Electrical).

Drawing.

Workshop.

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**FIRST YEAR COURSE. CIVIL, MECHANICAL AND ELECTRICAL.**

SUBJECTS.	CLASS HOURS.					
	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
ENGINEERING—						
Drawing ...	†10.30—11.30	...	2.30—5.0	†10.30—11.30	...	...
Workshop ...	...	2.0—5.0	...	2.0—5.0	...	9.30—1.0
MATHEMATICS—						
Course I. (Pure) ...	12.30—1.30	11.30—12.30	...	11.30—12.30	12.30—1.30	...
PHYSICS—						
Lectures, Course I. ...	11.30—12.30	...	11.30—12.30	...	11.30—12.30	...
Laboratory ...	...	...	2.0—4.0	...	...	...
CHEMISTRY—						
Lectures, Course I. (A.)* ...	9.30—10.30	9.30—10.30	9.30—10.30	9.30—10.30	...	...
Laboratory ...	...	...	...	...	2.30—5.0	...

\* Winter and Spring Terms only. † Summer Term only.

**SECOND YEAR COURSE. CIVIL, MECHANICAL AND ELECTRICAL.**

SUBJECTS.	CLASS HOURS.					
	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
<b>ENGINEERING—</b>						
Lectures, Course I. ...	...	11.30—12.30	...	11.30—12.30	...	...
" Course II. ...	11.30—12.30	...	...	...	11.30—12.30	...
Exercises ...	...	2.30—5.0	...	...	...	...
Drawing ...	...	...	...	2.30—5.0	...	...
Workshop ...	2.30—5.0	...	9.30—12.30*	...	2.30—5.0	9.30—1.0
Surveying ...	...	...	2.30—5.0	...	...	...
<b>MATHEMATICS—</b>						
Course II. (Pure) ...	9.30—10.30	9.30—10.30	...	9.30—10.30	9.30—10.30	...
Course I. (Applied) ...	10.30—11.30	10.30—11.30	...	10.30—11.30	10.30—11.30	...

\* Spring and Summer terms only.



## THIRD YEAR COURSE. CIVIL ENGINEERING STUDENTS.

SUBJECTS.	CLASS HOURS.					
	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
ENGINEERING—						
Lectures—General, Course III.	9.30—10.30	...	9.30—10.30	...	9.30—10.30	...
" Civil, " IV.	...	9.30—10.30	...	9.30—10.30	...	...
" Electrical, " VI.	11.30—12.30	...	11.30—12.30	...	11.30—12.30	...
Laboratory—General ...	...	...	2.0—5.0	...	...	...
" Electrical	...	...	...	2.0—5.0	...	...
Drawing ...	...	2.30—5.0	...	...	...	9.30—1.0
Workshop ...	...	...	...	...	2.0—5.0	...
GEOLOGY—						
Lectures, Course I. ...	10.30—11.30	...	10.30—11.30	...	10.30—11.30	...
Laboratory, " ...	...	9.30—10.30	...	9.30—10.30	...	...
Surveying Class (Summer).	...	...	...	...	...	(Afternoon, Summer Term only).

**THIRD YEAR COURSE.      MECHANICAL ENGINEERING STUDENTS.**

SUBJECTS.	CLASS HOURS.					
	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
ENGINEERING—						
Lectures—General, Course III.	9.30—10.30	...	9.30—10.30	...	9.30—10.30	...
" Mechanical " V.	...	12.30—1.30	...	12.30—1.30	...	...
" Electrical " VI.	11.30—12.30	...	11.30—12.30	...	11.30—12.30	...
Laboratory—General ...	...	...	2.0—5.0	...	...	...
" Electrical ...	...	...	...	2.0—5.0	...	...
Drawing ...	...	2.0—5.0	...	...	...	...
Workshop ...	2.30—5.0	...	...	...	...	9.30—1.0
PHYSICS—						
Course II, Part I. ...	10.30—11.30	...	10.30—11.30	...	10.30—11.30	..
METALLURGY—						
Lectures, Course I. ...	...	10.30—11.30	...	10.30—11.30	...	...
Laboratory ...	...	...	...	...	2.0—5.0	...
Workshop Class (Summer) ...	...	...	...	...	...	...

**THIRD YEAR COURSE.      ELECTRICAL ENGINEERING STUDENTS.**

SUBJECTS.	CLASS HOURS.					
	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
ENGINEERING—						
Lectures—General, Course III.	9.30—10.30	...	9.30—10.30	...	9.30—10.30	...
"   Mechanical " V.	...	12.30—1.30	...	12.30—1.30	...	...
"   Electrical " VI.	11.30—12.30	...	11.30—12.30	...	11.30—12.30	...
Laboratory—General ...	...	...	2.0—5.0	...	...	...
"   Electrical	...	...	...	2.0—5.0	2.0—5.0	...
Drawing ...	...	2.0—5.0	...	...	...	...
Workshop ...	2.30—5.0	...	...	...	...	9.30—1.0
PHYSICS—						
Course II, Part I. ...	10.30—11.30	...	10.30—11.30	...	10.30—11.30	...
Workshop Class (Summer) ...	...	...	...	...	..	...

**FOURTH YEAR COURSE. CIVIL ENGINEERING STUDENTS.**

SUBJECTS.	CLASS HOURS.					
	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
ENGINEERING—						
Lectures—Civil, Course VII.	...	11.30—12.30	10.30—11.30	11.30—12.30	...	...
Laboratory ...	...	10.30—5.0	...	10.30—5.0	...	...
Drawing ...	...	...	11.30—5.0	...	...	9.30—1.0
GEOLOGY—						
Lectures, Course II. ...	9.30—10.30	...	9.30—10.30	...	9.30—10.30	...
Laboratory * ...	11.30—12.30	...	...	...	11.30—12.30	...

\* All Friday in Summer Term.

**FOURTH YEAR COURSE.      MECHANICAL ENGINEERING STUDENTS.**

SUBJECTS.	CLASS HOURS.					
	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
ENGINEERING—						
Lectures—						
Mechanical, Course VIII. ...	...	10.30—11.30	11.30—12.30	10.30—11.30	...	...
Electrical,        "    IX. ...	...	9.30—10.30	9.30—10.30	9.30—10.30	..	...
Laboratory—Mechanical	...	...	...	11.30—5.0	9.30—5.0	...
"        Electrical	9.30—5.0	...	...	...	...	...
Drawing        ...	...	...	2.30—5.0	..	...	9.30—1.0
Workshop        ...	...	12.30—5.0	...	...	...	...

**FOURTH YEAR COURSE.      ELECTRICAL ENGINEERING STUDENTS.**

SUBJECTS.	CLASS HOURS.					
	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
ENGINEERING—						
Lectures—						
Mechanical, Course VIII. ...	...	10.30—11.30	11.30—12.30	10.30—11.30	...	...
Electrical,        "    IX. ...	...	9.30—11.30	9.30—10.30	9.30—10.30	...	..
Laboratory—Mechanical    ...	...	..	...	11.30—5.0	...	...
"    Electrical        ...	9.30—5.0	11.30—5.0	...	...	...	...
Drawing        ...        ...	...	...	...	...	...	9.30—1.0
Workshop        ...        ...	...	...	12.30—5.0	..	...	...



## HUMAN ANATOMY AND ANTHROPOLOGY.

*Professor* : BERTRAM C. A. WINDLE, M.Sc. ; M.A., M.D.,  
D.Sc. (Dub.), F.R.S., F.S.A.

*Lecturer* : W. WRIGHT, M.B. (Vict.), Ch.B., F.R.C.S.

*Demonstrators* : W. E. BENNETT, M.B., Ch.B., F.R.C.S.,  
J. JAMESON EVANS, M.B., C.M. (Edin.), F.R.C.S.

VIOLET A. P. COGHILL, M.B., Ch.B. (Edin.)

The courses in Human Anatomy will be found fully described in the Medical section of the Calendar. The following information relates to candidates taking the above subject for the B.Sc. examination.

I.—In Human Anatomy the candidate must have pursued the entire medical course for two Winter and one Summer Sessions as detailed in the regulations for medical degrees. He must also produce evidence that he has dissected the whole body at least once.

II.—In Anthropology the candidate must have attended the following courses of lectures :

- (i.) The course on Human Embryology.
- (ii.) A course of lectures and practical instruction in Anthropology and Ethnology. This course will include a general review of the province of Anthropology. Zoological and Anthropological characters of Man. Physical measurements on the living subject. Cranial and other skeletal measurements. The chief races of the world and their physical characters.
- (iii.) A short course of five lectures on the Principles of Teratology which will be given at the close of the course on Embryology.

FEES for these Courses :—

I. For the two Winter and one Summer				
Sessions	...	...	...	£26 5 0
Incidental Fees	..	...	...	3 13 6
II. For the Courses detailed under this				
section	...	...	...	4 4 0

## PHYSIOLOGY.

*Professor* : E. W. WACE CARLIER, M.Sc. ; M.D., B.Sc.  
(Edin.), F.R.S.E.

*Demonstrator* : J. H. RHODES, M.B., Ch.B. (Edin.),  
M.R.C.S.

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### UNIVERSITY COURSES.

#### I.

The course prescribed for the first year in the Faculty of Medicine.

#### II.

#### Advanced Practical Physiology.

Mondays and Fridays, from 2.30 to 4.30, during the whole Winter Session.

The Course will include the more advanced problems of experimental physiology, histology and physiological chemistry. The experimental part includes the physiology of muscle, nerve, heart, circulation, respiration, central nervous system and organs of sense and voice. The chemical section includes the analysis of organic substances found in the body, the chemical and spectroscopic examination of the blood and its derivatives, the chemistry of the digestive products and the results of their activity. The histological part consists in the practice of more advanced and complicated methods of histological research and of the results obtained by their use.

FEE for the Course, £6 6s. including an incidental fee of £1 1s.

Students desiring to prosecute research or other independent work in the laboratory will be allowed to do so *at the discretion of the Professor* on the payment of a fee of 2 guineas, including an incidental fee of £1 1s., for each period of three months.

#### REQUIREMENTS FOR DEGREES.

##### *B.Sc. Degree.*

- (1) Physiology as a principal subject : Students must take Course I, and in the subsequent year, must repeat the systematic lectures, and attend Course II.
- (2) Physiology as a subsidiary subject : Course I.

## METALLURGY.

*Professor:* THOMAS TURNER, M.Sc., A.R.S.M., F.I.C

*Lecturer and Instructor in Assaying:*

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### LECTURE COURSES.

#### I.

Tuesdays and Thursdays at 10.30 throughout the Session.

FEE:—£3 3s.

#### SYLLABUS.

(a) *Introductory*.—Chemical and Physical Properties of Metals. Metallurgical Terms. Description of Furnaces. Furnace Materials:—Acid, Basic, and Neutral. Composition of Fire Clay, Manufacture and Testing of Fire-bricks and Crucibles. Physical and Chemical Properties of Fuel. Principles of Combustion. Pyrometers. Gaseous Fuel. Preparation of Coke, Charcoal, and Patent Fuels. Slags and Fluxes. Composition and Character of Slags. Utilization of Slag. Classification of Metallurgical processes.

(b) *Iron and Steel*.—Composition, Characters, and Preliminary Treatment of Iron Ores. Manufacture of Cast Iron. Theory of the Blast Furnace. Chemical and Mechanical Properties of Cast Iron. Foundry Practice. Manufacture of Wrought Iron. Chemistry of the Puddling Furnace. Properties of Wrought Iron. Manufacture and Properties of Steel. Puddled, blister, shear, and crucible steel. Bessemer and Siemens' Steel. Basic Process. Chemical Composition and Mechanical Testing of different varieties of Iron and Steel.

(c) *Metals and Alloys*.—Preparation, Properties, and Principal Alloys of Copper, Zinc, Tin, Antimony, Bismuth, Nickel, Aluminium, Gold, Silver, Lead, Mercury, Platinum, Iridium, and Palladium. Principles of Electro-Metallurgy.

#### TEXT BOOKS RECOMMENDED:—

- Roberts-Austen's Introduction to Metallurgy. (Griffin.)
- Huntington and McMillan's "Metals." (Longmans.)
- Phillips' Metallurgy. (Griffin.)
- Rose's Gold. (Griffin.)
- Turner's Iron. (Griffin.)

#### For Electro-Metallurgical Work:—

- McMillan's Treatise on Electro-Metallurgy (Griffin).

It will be necessary to assume that students in this department possess an elementary knowledge of Chemistry and Physics.

## II.

A Course of Lectures and practical work, specially designed for engineering students of the third year, will be arranged for throughout the year.

FEE :—£4 4s.

## III.

A Course of about thirty Lectures for senior students is given.

The class meets once a week, at times arranged at the beginning of the session, to suit the other engagements of students.

FEE :—£1 11s. 6d.

## IV.

A Course of Lectures and practical instruction in Determinative Mineralogy and Blowpipe Analysis will be given during the Winter Session.

FEE :—£3 3s.

## *METALLURGICAL LABORATORY.*

Pending the erection of the University buildings on the Bournbrook site, arrangements have been entered into with the Committee of the Birmingham Municipal Technical School for the teaching to be given in the Laboratories and Lecture Halls of the Technical School, which have been specially designed and equipped for Metallurgical instruction.

The practical work in the laboratory is arranged to suit the individual requirements of the students. Instruction is given in all the usual methods of wet and dry assaying and in the reactions which underlie various metallurgical processes. Senior students are encouraged to undertake research work bearing upon their intended future avocations.

All students work independently, and as far as practicable at the hours best suited to their arrangements.

Special facilities will be offered to proprietors, managers, or assistants of factories, and to others engaged in technical or professional work, who desire either to study the technology of their subject, to investigate new processes, or to work out improvements in those which are now in operation. Every endeavour will be made to adjust the days and hours of attendance to the varying business engagements of those who propose to avail themselves of the laboratory for such purposes.

Students may commence work in the laboratory at any time. Laboratory students, upon admission, pay a deposit of £1 as caution money. This is returned at the end of the course, after deducting the cost, for breakages, &c., incurred. Caution money will not be repaid unless claimed by the student within one year of finally leaving the University.

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### Syllabus of Practical Metallurgy and Assaying.

*Examination of Fuel.*—Commercial Analysis, including Ash, Moisture, Sulphur, Coke, and Calorific Power.

*Furnace Materials.*—Examination and testing of fire-clay.

*Metals and Alloys.*—Properties of Copper, Zinc, Tin, Lead, &c. Preparation of different varieties of Brass, Bronze, &c.

*Oxidation and Reduction.*—Experiments illustrating the use of oxidising and reducing agents in metallurgy. Lead Assay.

*Slags and Fluxes.*—Experiments illustrating the composition and formation of slags.

*Iron Assay.*—Assay of Iron Ores, Slags, and Fetting, for Iron, Silica, Phosphorus, &c. Dry Assay of Iron.



*Gold*.—Assay of Gold Ores, Lemel, and Bullion.

*Silver*.—Assay of Silver Ores, Wet and Dry Assay of Silver, Preparation of Silver Alloys.

*Copper*.—Wet and Dry Copper Assay; Analysis of Brass, Bronze, German Silver, and other Copper Alloys.

*Tin, Lead, Zinc, Antimony, Nickel, Cobalt, and Aluminium*.—Assay of Ores and Analysis of most important Alloys.

*Iron and Steel*.—Complete Analysis of Iron Ores, Cast Iron, Wrought Iron, and Steel.

*Fuel*.—Complete Analysis of Coal, Coke, &c. Gas Analysis as applied to metallurgical operations.

*Furnace Materials*.—Assay and Analysis of Clay, and other fire-resisting materials.

*Electro-Metallurgy*.—Electro-deposition of Gold, Silver, Copper, Brass, and Nickel. Electro-refining of Metals, &c.

#### LABORATORY FEES :—

	All day.	Three hours per day.	Three hours per day ; three days a week.
	<i>Guineas.</i>	<i>Guineas.</i>	<i>Guineas.</i>
One Term ...	7	4½	2½
Two Terms ...	13	8½	5
Three Terms...	18	12	6½

Gas, fuel, water, and ordinary reagents are supplied by the University, but students must provide themselves with a small set of Apparatus; also with crucibles and materials when large quantities are required.

TEXT-BOOKS RECOMMENDED—Beringer's Text-Book of Assaying (Griffin). Blair, Chemical Analysis of Iron (Lippincott). Arnold, Steel Works Analysis (Whitaker).



**Excursions.**

Excursions to Metallurgical Works in the neighbourhood of Birmingham will be arranged from time to time as in previous years.

**TIME TABLE.**

METALLURGY.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Lectures—						
Course I. ....	...	10.30	...	10.30	...	...
„ II. ....	...	By arrangement.				...
„ III. ....	One Hour weekly ; by arrangement.					
„ IV. and } Practical }	...	2.30-5	...	...	...	...
Laboratory—open ...	10-5	10-5	10-5	10-5	10-5	10-1

## MINING.

### COAL MINING AND METAL MINING.

*Professor:* R. A. S. REDMAYNE, M.Sc. ; M.I.M.E., F.G.S.

*Demonstrator and Surveying Assistant:*

The Mining Department of the Birmingham University has been founded by the University authorities in order to meet the requirements of the large mining community of the Midlands, and at the same time to afford mining men from other parts of Great Britain and the Colonies theoretical and practical instruction in the various branches of mining.

Situate as Birmingham is in the centre of England and Wales, with Coalfields both in its immediate neighbourhood and within a short journey by rail, the University mining department should form the natural centre for all those interested in mining matters in the English Midlands. Especially will this be the case as regards Coal Mining, for the student in this branch will have an almost unrivaled opportunity for inspection and practical illustration among the many and varied coalfields of the Midlands generally.

Further, as the Mining Department of the University will be furnished with the materials and apparatus for the teaching of Metal mining, this will also form a natural and important feature of the mining curriculum. Here, again, the central position of Birmingham is most advantageous. The student will be able, during special weeks in the year, to visit at no great cost the metal mining districts of Cornwall, Wales, and elsewhere, and study the practice of metal mining on the spot.

The time of the mining students at the University will not be devoted specially to theoretical work ; much of it will be of a thoroughly practical character. There will be weekly visits to the mines of the neighbourhood, and a month or five weeks will be devoted by the students each year, in company with the Professor, to the inspection and study of some group of metalliferous mines in Britain or abroad (Summer Mining School).

It is suggested that before entering upon the study of any of the Mining courses projected in the following Syllabus, intending University mining students should devote at least one year of their mining apprenticeship to practical work at the mine, as it has been shown by repeated examples that young men who have had some practical experience of the Mining profession before entering upon what may be called the scholastic part of their professional training, perceive more clearly the necessity for and value of the scientific training required to fit them for their profession, and therefore pursue their studies with greater zest and more satisfactory results.

The courses here sketched out have been so arranged as to meet the requirements of those who intend to become

1.—Practising and Consultative Mining Engineers, where a thorough knowledge of mining *in all its branches* is necessary ;

2.—Colliery Managers ;

3.—Managers of Metal Mines ;

4.—Teachers of Mining ;

5.—Mine Surveyors ;

6.—Land and Estate Agents ;

7.—Landowners, owners of Collieries, and those generally interested in mines and quarries.

The courses also include Laboratory practice for those who have already passed through a Mining course at other Mining Schools.

The following curriculum is provisional, and may be hereafter altered or extended as experience of the wants and requirements of mining students and the mining public may determine.

#### COURSES OF STUDY.

These mining courses, extending over three years, are based on those at present existing at the principal European and American Mining Schools, and comprises an education in the principles and practice of coal mining, metal mining, quarrying, mine surveying, plan making,

mining jurisprudence ; and, in connexion with these courses, the students attend lectures and laboratory classes in those sciences allied to mining.

The complete course includes the following subjects :—

Mathematics, including Algebra, Trigonometry and Geometry.

Inorganic Chemistry with laboratory practice.

Geology and Mineralogy.

Physics, elementary (first year course) and laboratory practice.

Engineering, Mechanical and Electrical (elementary).

Coal Mining, Metal Mining.

Metallurgy and Assaying, in so far as applied to the treatment of ores only, and the analysis of fuels.

The following is the course laid down for the first year :—

#### *FIRST YEAR.*

- 1.—Mathematics, Course I.
- 2.—Chemistry, Course I A, and Chemical Laboratory.
- 3.—Geology, Course I.
- 4.—Elementary Mining and Mining Engineering, Course I.

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## MINING.

### LECTURE AND LABORATORY COURSES.

#### I.

#### *FIRST YEAR'S COURSE.*

Two lectures a week. Hours by arrangement.

FEE :—£3 3s.

(a) A course of about sixty lectures will be given during the session on General Mining, which will follow the lines of the subjoined syllabus.

#### **Syllabus.**

*Objects and Conditions of Mining.*—Scope of the subject,

*Prospecting and Boring.*—Outcrops, surface indications, coal and other mineral deposits, costeaning, shoadng, position of boreholes, various methods of boring, surveying boreholes.

*Breaking Ground.*—Sinking shafts, position, number, shape, and size of shafts, manner of sinking and securing shafts, sinking through running ground, various costs in connection with sinking.

*Underground Development and Systems of Working.*—Laying out a colliery underground. Preliminary operations in coal and metal mines. Various systems of working coal seams and mineral veins. Coal cutting. Blasting. Timbering in colliery workings and in metal mines.

*Transport.*—Underground and Surface transport, haulage by hand, by horse, mechanical haulage, inclines, locomotive and electric haulage. Ropes, surface transport, aerial ropeways, horse, steam, and electric tramways.

*Winding.*—Kibbles, skips, ropes, cages, pithead frames, guides, keeps, onsetting and banking, arrangement of pit-head. Winding engines, drums.

*Drainage.*—Water levels, dams, underground pumping and pumps, pumping by ropes, steam, compressed air, electric and hydraulic pumps, surface pumps and pumping.

*Ventilating.*—Air and mine gases. Natural ventilation. Furnaces, fans, and other ventilators, underground air-currents. Splitting and measuring air-currents. Safety lamps.

*Miscellaneous.*—Lighting of mines. Modes of communication. Screening of coals and preparation for the market, coal-washing, coking. Arrangement of surface works.

(b) *Mine and Land Surveying and Plotting extending over two years.*—One day a week will be devoted alternately to surveying in the field or underground, and to plotting surveys in the drawing room.

**FEE:**—£1 ls. per annum.

This course is intended for students in Mining, Agriculture, Civil and Electrical Engineering. Besides the practical work in the field, underground, and in the drawing room, there will be occasional lectures on the subject.

#### SYLLABUS OF LECTURES.

Drawing and making Scales, Plotting Angles by Protractor, by Chords, and by Co-ordinates. Calculation of Areas. Measurement of Distances. Chains, tapes, offsets,

Measurement on Slopes. Clinometers. Levelling. Level and Staff. Flying levels. Underground levelling and levels. Sections, cuttings and embankments. Miner's Dial. Loose and fast needle dialling. The Theodolite, Prismatic Compass. Mode of conducting a surface and an underground survey. Connecting surface and underground Surveys. Miscellaneous Surveying Problems.

(c) *Visits of Inspection to Mines.*—On Saturdays there will be, whenever possible, visits to the coal mines in the neighbourhood, when much that has been treated by the Lecturer during the week will be emphasized by the practical demonstration then witnessed. These visits will be common to the students attending all or any of the mining courses.

This first year course constitutes in itself a complete outline mining course, and can be taken as such by occasional students, but those students who have entered for the Mining Certificate or the degree in Mining will have to proceed in the one case to Course II and in the other to Courses II and III.

## II.

### SECOND YEAR'S COURSE.

One Lecture a week.

FEE :—£2 2s.

A course of about thirty lectures will be given during the Session, which will follow the subjoined Syllabus.

*Colliery and Mine Management.*—Re-opening of drowned out mines; special instances described. Colliery explosions. Mode of procedure in work of rescue and reclamation; special instances treated. Systems of employment and payment of men. Relations of Capital and Labour. Examination and Valuation of Mines and Mineral Properties. Mine Reports. Commercial considerations.

*Mining Jurisprudence.*—Mining Laws and Regulations. Acts of Parliament relating to Coal and Metal Mines. Ownership of Minerals, Royalties, Concessions, Leases, Dues. Foreign Mining Laws.

*Quarrying and Brickmaking.*—The Quarrying of Slates and Building Stones, Clays, and Brick Making.



The Mine and Land Surveying and Plotting will be continued in the second year, the course described under the first year's course being common to the first and second years. The more advanced sections are taken in the second year.

### III.

#### THIRD YEAR'S COURSE.

FEES:—Lectures, £2 2s. ; Laboratory, £5 5s.

A considerable part of the time of the third year's Mining Course will be given to practical work in the laboratory, but there will be a series of lectures on Foreign Coal and Metal Mining, also instruction in the theoretical principles involved in the dressing of gold, silver, copper, lead and other ores and fuels. These lectures and the instruction will be in accordance with the following Syllabus:—

#### FOREIGN COAL AND METAL MINING.

*Coal and Mineral Deposits.*—Methods of Classification. Various classes of Deposits, with illustrative typical examples of each. Chief coal and ore deposits of the world. Their mode of occurrence, distribution and importance.

*Working of Coal and Ore Deposits.*—Special methods adopted in different parts of the world to meet special requirements. Brown coal, bitumenous coal, the anthracites of America and elsewhere. Foreign metal mines.

#### DRESSING OF MINERALS AND FUELS.

*Objects and Principles.*

*Hand Sorting.*—Spalling, Picking, Picking Belts, Tables.

*Crushing.*—Rock-breakers, Rolls, Stamps, Disintegrators, Coal-breakers.

*Sizing.*—Sieving, Screens of various types, Hydraulic Sizing.

*Hydraulic Dressing.*—Principals, Jigs, Coal-washers, Buddles, Blankets, Frames, Vanners.

*Pneumatic Dressing.*

*Magnetic Separation.*

*Applications of methods to special cases.*—Coal Washing. Cleaning Iron Ores. Dressing of Lead, Copper, Zinc Ores. Tin Stamping. Gold Milling. Concentrating Silver Ores. Gem Washing. The Designing and Erection of Mineral Dressing Plant.

*SUMMER SCHOOL.*

A month or five weeks in every long vacation will be devoted to visiting and making a thorough inspection of the mines in some metalliferous mining district either in Britain (second year) or abroad (third year). The students will be required to take detailed daily notes and to furnish a full report upon the termination of the month or five weeks' work.

*CERTIFICATE OR DIPLOMA IN MINING.*

Students who desire to obtain a certificate in Coal Mining, such as to fit them for colliery management, must take the lecture and laboratory courses laid down for the first and second years, together with certain lecturing and laboratory courses in the allied sciences. The complete first year course has already been described.

*B.Sc. DEGREE IN MINING.*

Candidates for a Degree in Mining are required to be matriculated in the Faculty of Science before entering on the courses of study for the degree. After matriculation, students are required to attend courses of study in mining and the allied sciences, for a period of at least three years. The first year's course has already been described.

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## TIME TABLE

*For Students preparing for the Intermediate  
Examination in Science.*

SUBJECT.	Course	Mon.	Tues.	Wed.	Thurs.	Fri.
Pure Mathematics ...	I.	12.30	11.30	...	11.30	12.30
Physics ... ..	I.	11.30	...	11.30	...	11.30
" (Practical) ...	...	...	...	2—4	...	...
Chemistry (Win. & Spring)	I.	9.30	9.30	9.30	9.30	...
" (Summer) ...	...	9.30	...	9.30	...	9.30
Zoology ... ..	I.	...	12.30	...	12.30	...
" (Practical) ...	...	...	2-4	...	2-4.30†	...
Botany ... ..	I.	4.0	...	...	..	4.0*
" (Practical)...	...	<i>By arrangement.</i>				

\* During Winter and Spring Terms only.

† Summer Term only.

## TIME TABLE

*For Students preparing for B.Sc. Examination.*

SUBJECT.	Course	Mon.	Tues.	Wed.	Thurs.	Fri.
Pure Mathematics ...	II.	9.30	9.30	...	9.30	9.30
" " ...	III.	9.30	9.30	...	9.30	9.30
Applied Mathematics	I.	10.30	10.30	...	10.30	10.30
" "	II.	11.30	12.30	...	12.30	11.30
Physics ( <i>First Year</i> )	II.	10.30	...	10.30	...	10.30
" ( <i>Second Year</i> )	...	...	10.30	10.30	10.30	...
" (Practical) ...	...	<i>By arrangement.</i>				
Chemistry ...	II.	}	<i>By arrangement.</i>			
" ...	III.					
" (Practical)	...					
Zoology ...	II.	12.30	12.30	12.30	...	12.20
" ...	III.	}	<i>By arrangement.</i>			
" (Practical)...	...					
Botany ...	II.	11.30	11.30	...	11.30	11.30
" ...	III.	}	<i>By arrangement.</i>			
" (Practical)	..					
Geology (Win. & Sp.)	I.	10.30	...	10.30	...	10.30
" (Summer) ...	...	<i>By arrangement.</i>				
" (Practical) ...	...	...	9.30	...	9.30	...
" (Win. & Sp.)	II.	9.30	...	9.30	..	9.30
" (Practical) ...	...	...	10.30	...	...	...
" ...	III.	...	<i>By arrangement.</i>			
Anatomy ...	...	...	<i>See Medical Syllabus.</i>			
Anthropology ...	...	...	<i>By arrangement.</i>			
Physiology ...	...	...	<i>See Medical Syllabus.</i>			
" Advanced	...	2.30	...	...	...	2.30

## FACULTY OF ARTS.

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### REGULATIONS FOR ORDINARY DEGREES IN THE FACULTY OF ARTS.

No degree can be obtained without attendance upon certain prescribed courses of study in the University extending over a period of at least three years after matriculation, and no attendance upon lectures in the University prior to matriculation will be accepted as any part of the qualification necessary for a degree. Before entering for an examination of the University each undergraduate is required to present a certificate of qualification stating that he has attended to the satisfaction of the professors concerned not less than two-thirds of the lectures and classes, and that he has passed such class examinations, and performed such other exercises as his teachers may prescribe in connexion with their own courses, to the satisfaction of the Faculty.

Candidates who have failed in any of the subjects offered for examination may be required by the Faculty to attend a further course in that subject before sitting for a subsequent examination.

#### B.A. Degree.

Candidates for this degree are required to pass two University examinations, the *Intermediate* and the *Final*.

#### INTERMEDIATE EXAMINATION.

Candidates for the Intermediate Examination are required to have attended University courses of study for at least one academic year after matriculation in each of the following subjects :—

- (i.) Latin.
- (ii.) English Language, Literature and History.
- (iii.) Either Pure Mathematics or Logic.
- (iv.) Two of the following, of which one must be a modern foreign language :—Greek, French, German, Italian, Spanish, Logic or Pure

Mathematics (if not already selected under iii.), a Physical or a Natural Science, Theory and Practice of Education, European History since the French Revolution together with British Institutions.

Two printed examination papers will be set in each of the five subjects of Examination. There will also be a *viva voce* examination in Latin, Greek, and Modern Foreign Languages. The Examiners, however, will not be precluded from holding a *viva voce* examination in any subject if they think it desirable.

Candidates who pass in three or more subjects will be allowed to offer themselves for the remaining subjects or subject at any subsequent examination.

The Intermediate pass list will be issued in three divisions, the first of which will contain the names of those candidates who pass with distinction.

#### FINAL EXAMINATION.

Candidates for the Final Examination are required to have spent at least three academic years in attendance on lectures in the University after matriculation in the Faculty. All such candidates are required to take University courses of study in five subjects, one under each of the following headings, of which subjects three must be principal subjects, and studied for two years each, the remaining two subjects being subsidiary subjects, and studied for one year each.

- (i.) One Ancient Language and Literature (Latin, Greek).
- (ii.) One Modern Foreign Language and Literature (French, German, Italian, Spanish).
- (iii.) Either English Literature or History (Ancient or Modern).
- (iv.) Either Mathematics or Philosophy.
- (v.) A "special subject" to be selected among the subjects taught in the University at compatible hours. This subject must be either



- (a) A fifth subject (other than the four already selected) from one of the preceding four groups, or
- (b) A fifth subject not contained in any of the above groups, studied for one year as a subsidiary subject; *e.g.*, Logic (if not already taken at the Intermediate Examination), Commerce of the British Empire, History of Educational Ideas, a Physical or Natural Science.

The examination in subsidiary subjects may be taken at the conclusion of the courses.

There will also be a *viva voce* examination in Latin, Greek, and Modern Foreign Languages. The Examiners, however, will not be precluded from holding a *viva voce* Examination in any subject, if they think it desirable.

The B.A. pass list will be issued in three divisions, the first of which will contain the names of those candidates who pass with distinction in one or more of their principal subjects.

### M.A. Degree.

Bachelors of Arts may be admitted to the degree of M.A. on passing an Examination after at least one year of further study\* in one or in two of the principal subjects taken at the B.A. Degree, and presenting a dissertation indicative of acquaintance with the methods of research and connected with the subject or with one of the subjects offered for examination. (See also p. 135.)

### D.Phil. and D.Litt. Degrees.

Masters of Arts may be admitted to the degree of D.Phil. (Doctor Philosophiæ) or D.Litt. (Doctor Litterarum) on the presentation and approval of a printed or type-written dissertation embodying the results of original research or contributing generally to the advancement of learning.

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\* In ordinary cases the year of study must be spent at the University of Birmingham; but candidates desirous of pursuing some special line of study at some other (British or Foreign) University may receive permission to do so on the recommendation of the Faculty.

## REGULATIONS FOR DEGREES IN THE SCHOOL OF MODERN LANGUAGES.

Candidates may be admitted to the School of Modern Languages after passing the Intermediate Examination in Arts in the First Division, the following subjects being taken :—(i.) French, (ii.) German, (iii.) Latin, (iv.) English Language, Literature and History, (v.) either Mathematics or Logic.

This Examination may be taken either at entrance to the University in lieu of the Matriculation Examination, or at the end of one year's course of study at the University after passing the Matriculation Examination.

A special Intermediate Examination will be held for this purpose in September 1902.

After completing a three years' course of study and passing two examinations students of the School will be admitted to the degree of Bachelor of Arts in the School of Modern Languages; and after completing one year of further study and presenting a dissertation indicative of acquaintance with the methods of research and connected with one of their subjects of study they may be admitted to the degree of Master of Arts in the School of Modern Languages.\*

The course for the degree of Bachelor of Arts in the School of Modern Languages embraces the following subjects of study :—

- (i.) Either French or German, taken as a principal subject.
- (ii.) Either German or French or English, taken as a subsidiary subject.
- (iii.) An additional subject during the first two years of the course, viz., either English or Latin.

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\* One of these four years of study may be spent at some other (British or Foreign) University on the recommendation of the Faculty.

The First Examination in the School of Modern Languages will be held at the end of the first year of study.

The Final Examination in the School of Modern Languages will be held at the end of the third year of study, and will include papers of the standard of the ordinary M.A. Examination in the following groups, of which Groups I and II must be taken in the principal subject, and Group I in the subsidiary subject:—

### French.

#### GROUP I.

- (i.) French Essay.
- (ii.) Unprepared French Translation.
- (iii.) Selected French Authors.
- (iv.) History of French Literature.

#### GROUP II.

- (i.) French History and Institutions.
- (ii.) Old and Middle French Texts.
- (iii.) Romance Philology.
- (iv.) A selected period of French Literature.

### German.

#### GROUP I.

- (i.) German Essay.
- (ii.) Unprepared German Translation.
- (iii.) Selected German Authors.
- (iv.) History of German Literature.

#### GROUP II.

- (i.) German History and Institutions.
- (ii.) Old and Middle High German Texts.
- (iii.) Germanic Philology.
- (iv.) A selected period of German Literature.

### English (if taken as a subsidiary subject).

- (i.) English Essay.
- (ii.) Shakspeare.
- (iii.) Selected English Authors.
- (iv.) History of English Literature.

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For Scholarships tenable in the School of Modern Languages, see Harding Scholarships in German, p. 297.

### UNIVERSITY DIPLOMAS IN EDUCATION.

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There are two University Diplomas in Education, the General and the Higher.

#### GENERAL DIPLOMA.

1.—Candidates for the General Diploma must be over eighteen years of age, and must have passed the Intermediate Examination of the University of Birmingham or some equivalent examination.

2.—The further conditions imposed by the University are as follows :—

- a.* An examination (consisting of at least two papers and a *viva voce*) in the Art and Theory of Education as applied to the teaching of the ordinary English subjects in the junior forms of a school, the formation of character, the maintenance of discipline, and hygiene.

For further details candidates are referred to the syllabus of the Theory and Practice of Education, Courses I and II.

- b.* The satisfactory delivery of not less than *two* lessons (out of *four* prepared), of which the examiner will select one and the candidate one.

3.—Before receiving the Diploma, candidates must also submit to the Registrar one of the following certificates :—

- a.* From the Head Teacher of a school of recognised standing, or from an officer of such a school specially appointed for the duty of training, stating that the candidate has spent not less than six months as a teacher or probationer in the school, and that he is a competent teacher and disciplinarian.
- b.* From an officer of the University specially charged with the duty of training, stating that the candidate has delivered not less than seventy-five lessons in a school approved by the University for this purpose, and that he is a competent teacher and disciplinarian.

This certificate may be obtained at any time, either before or after passing the above examination (2 a).

NOTE.—Candidates who have already passed the Intermediate Science or Arts Examination of the University of Birmingham, in which they offered the Theory and Practice of Teaching as one subject, may be awarded the General Diploma without further examination.

#### HIGHER DIPLOMA.

1.—Candidates may pass the Higher Diploma Examinations at any time, but the Diploma will not be granted until the candidate has passed *all* the examinations qualifying for a degree, or the equivalent thereof.

2.—The further conditions imposed by the University are as follows :—

a. (For Candidates not holding the General Diploma)  
As for the General Diploma.

b. An advanced examination in the Art of Teaching, with special reference to one of the subjects offered for the B.A. or B.Sc. degree, and in connexion with the different methods of teaching that may be adopted in the lower and in the higher forms of a secondary school.

NOTE.—In addition to a paper on the foregoing, candidates will be required to deliver a lesson, previously prepared, on the subject chosen.

c. An advanced examination in the Theory of Education, together with one special subject to be chosen by the Candidate from the following list:—

i. History of Educational Ideas, to be studied in connexion with a special book, and to include a special period prescribed from time to time.

For further details see the syllabus of Theory and Practice of Education, Course III.

ii. Organization of Education in some foreign country.

In the examinations for the degree of B.A. or B.Sc. the foregoing course of studies (*c. i.*) for the Higher Diplomas counts as one subsidiary subject.

## FACULTY OF ARTS.

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### SYLLABUS OF COURSES.

The Courses of Lectures in the Faculty of Arts are subdivided under two headings:—

- (1) *Preliminary Courses*, i.e., courses preliminary to matriculation in the University. Under this head are included all courses which do not form parts of degree courses of the University.
- (2) *University Courses*, i.e., courses forming parts of degree courses of the University.

For Mathematics and Sciences included in the syllabus of the B.A. Course see Faculty of Science.

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## LATIN AND GREEK.

*Professor* : E. A. SONNENSCHIEIN, M.A. ; D.Litt., Oxon.

*Lecturer* : C. EXON, B.A., Dublin.

*Lecturer in Greek Language, Literature and Archæology* :

J. H. HOPKINSON, B.A., late Craven Fellow of the  
University of Oxford.

 The *Preliminary Courses* in Latin and Greek are designed to secure a knowledge of the languages (including Grammar and Composition), such as is necessary for students entering on University Courses in these subjects.

The *University Courses* in Latin and Greek for the B.A. degree are designed to embrace a study of representative masterpieces of Latin and Greek literature, which will be treated as literary wholes and from a literary point of view. The three year Course brings the student into contact with typical specimens of classical literature in the fields of Epic, Lyric, Idyllic, and Dramatic poetry, and of historical and philosophical prose and literary criticism, and thus provides a basis for the historical and comparative study of English and other modern literatures. At the same time the study of the languages from the grammatical and philological point of view, and the practice of composition, will be maintained and developed, mainly in connexion with the prose works selected under each course.

One University Course in both Latin and Greek (Course IV) will be reserved as a specifically linguistic course, in preparation for the M.A. degree ; and students entering the University with a view to reading for the M.A. are recommended to take this Course (the subject of which will be varied from year to year) in addition to the B.A. Courses throughout their period of study.

VACATION READING.—For the subjects recommended for Vacation Reading in Latin and Greek see pp. 307–308.

## LATIN.

## PRELIMINARY COURSE.

## SECTION A AND SECTION B.

Mondays, Wednesdays and Fridays, at 4.30.

In this Course students are prepared for the Matriculation Examination of the University of Birmingham.

SUBJECTS : Cicero, *Pro Lege Manilia* (edited by J. Hunter Smith in Sonnenschein's "School Authors"); Professor Sonnenschein's Latin Grammar (Accidence and Syntax).

FEE :—£3 13s. 6d.

## UNIVERSITY COURSES.

## COURSE I.—THE EPIC.

Mondays and Wednesdays, at 2.30.

SUBJECTS : (1) Vergil, *Aeneid* IV. and VI., with a literary study of the *Aeneid* as a whole.

(2) Selections from Livy.

BOOKS RECOMMENDED :

Vergil : *Aen.* I.—VI., edited by Page (Macmillan's Classical Series).

Translation of the whole *Aeneid*, in verse, by J. Rhoades (Longman); or of *Aeneid* I.—VI. in verse, by Bowen (Murray).

"Livy Lessons" by J. Hunter Smith (Swan Sonnenschein & Co.).

*Latin Literature*, by J. W. Mackail (Murray).

FEE :—£2 12s. 6d.

## COURSE II.—LYRIC POETRY.


Mondays and Wednesdays, at 2.30.

SUBJECTS—(1) Select lyrics of Horace and Catullus.

(2) Tacitus, *Agricola*.

## BOOKS RECOMMENDED :

Horace: *Odes*, edited by Page (Macmillan's Classical Series) or by Gow (Pitt Press).

 Students taking Latin as a principal subject for the B.A. are recommended to get the whole works of Horace, edited in one volume, by Page, Palmer and Wilkins (Macmillan).

Translations: verse, by De Vere (Bell), or select *Odes* in W. Scott's *Canterbury Poets*.

Catullus: *Select Poems*, edited by Simpson (Macmillan's Classical Series).

Translation: verse, by Martin (Blackwood).

Tacitus: *Agricola*, edited by Walters (Blackie), or by Pearce (Bell), or by Furneaux (Clarendon Press).

Translation by Church and Brodribb (Macmillan).

FEE:—£2 12s. 6d.

## COURSE III.—LITERARY CRITICISM AND THE IDYLL.

Tuesdays and Thursdays, at 3.30, during the Winter and Spring Terms. During the Summer Term meetings will be arranged for conference and discussion.

SUBJECTS: (1) Horace, *Select Epistles*, including the *Ars Poetica*; or Quintilian, *Institutio Oratoria*, Book X.

(2) Vergil, *Bucolics*.

## BOOKS RECOMMENDED :

Horace, complete works by Page, Palmer and Wilkins (see Course II.), or *Epistles* alone by Wilkins (Macmillan's Classical Series).

Translation of the *Epistles* in verse by Conington (Bell).

Vergil, *Bucolics and Georgics*, by Page (Macmillan's Classical Series).

Quintilian, Book X., edited by Peterson (Clarendon Press).

FEE:—£2 12s. 6d.

*COURSE IV.—ADVANCED COURSE ON LANGUAGE.*

Mondays, Wednesdays and Fridays, at 3.30.

One hour a week of this course will be devoted to Comparative Philology. The other subjects of the Course will be chosen with a view to the M.A. degree, and will include select plays of Plautus, with a study of metres and grammar.

EDITION RECOMMENDED :

T. Macci Plauti Comœdiæ, edited by Goetz and Schoell (editio minor, Teubner).

FEE :—£2 12s. 6d.

**Composition Sets.**

Sets will be formed for the practice of Latin Composition of various stages of difficulty, and will meet on Fridays, at 2.30. More advanced students will be taken separately, at hours to be fixed at the commencement of the session.

FEE :—£1 11s. 6d.

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**GREEK.****PRELIMINARY COURSE.**

Mondays, Wednesdays, and Thursdays, at 3.30.

In this Course students are prepared for the Matriculation Examination of the University of Birmingham.

SUBJECTS : Xenophon, *Cyropaedeia*, Book I ; Professor Sonnenschein's Greek Grammar.

FEE :—£3 13s. 6d.

**UNIVERSITY COURSES.***COURSE I.—THE EPIC.*

Tuesdays and Thursdays, at 2.30.

SUBJECTS—(1) Homer, *Odyssey* IX. and XI., with a literary study of the *Odyssey* as a whole.  
(2) Plato, *Apology*.


## BOOKS RECOMMENDED :

Homer, *Odyssey*, I.—XII., ed. by Merry (Clarendon Press).

Translation of the whole *Odyssey*: prose, by Butcher and Lang (Macmillan); verse, by Way (Barnicott and Pearce, Taunton).

Jebb, *Introduction to Homer* (MacLehose).

Plato, *Apology*, edited by Adam (Pitt Press Series).

 Students taking Greek as a principal subject for the B.A. are recommended to get Forman's *Selections from Plato*, which include the *Apology* (Macmillan's Classical Series).

FEE :—£2 12s. 6d.

## COURSE II.—THE DRAMA.

Tuesdays and Thursdays, at 2.30.

SUBJECTS : (1) *Æschylus, Prometheus*, with a literary study of the Greek Drama.

(2) *Thucydides, II.*, omitting chapters 23—33, 66—69, 79—82, 93—103.

## BOOKS RECOMMENDED :

*Æschylus, Prometheus*, edited by Haines (Swan Sonnenschein and Co.).

*Æschylus, The Seven Plays*, translated in verse by Campbell (Paul); or *The House of Atreus*, by Morshead (Paul), containing the *Oresteia*.

Jebb, *Primer of Greek Literature* (Macmillan).

Verrall, *The Student's Manual of Greek Tragedy* (Swan Sonnenschein & Co.).

*Thucydides, II.*, edited by Marchant (Macmillan's Classical Series).

FEE :—£2 13s. 6d.

COURSE III.—PHILOSOPHY OR LITERARY CRITICISM,  
AND THE IDYLL.

Mondays and Wednesdays, at 4.30, during the Winter and Spring Terms. During the Summer Term meetings will be arranged for conference and discussion.

- SUBJECTS : (1) Selections from Plato; or Longinus, *On the Sublime*, chapters 8—40.  
 (2) Select Idylls of Theocritus.

NOTE.—Aristotle's *Poetics* is read in the English Literature Course for the Second Year (Course II.).

BOOKS RECOMMENDED :

Plato, Selections by Forman (see Course I.)

Longinus, edited by Rhys Roberts (Pitt Press); or translation by Havell (Macmillan).

Theocritus, edited by Cholmeley (Bell).

Translations : verse by Hallard (Longman), or by Calverley (Bell); prose by Lang (Macmillan).

FEE :—£2 12s. 6d.

COURSE IV.—ADVANCED COURSE ON LANGUAGE.

Tuesdays and Thursdays, at 4.30 (or by arrangement).

The subjects of this course will be chosen with a view to the M.A. degree.

SUGGESTED SUBJECTS : (1) Pindar, Pythian Odes. (2) Pausanias, Book X.

BOOKS RECOMMENDED :

Pindar, *Olympian and Pythian Odes*, edited by Gildersleeve (Macmillan).

Translations : verse, by Morice (Paul); prose, by Myers (Macmillan).

Aristophanes, text of complete works by Hall and Geldart (Clarendon Press).

Translation of select comedies in verse by J. H. Frere (Morley's Universal Library).

FEE :—£2 12s. 6d.

Composition Sets.

Sets will be formed for the practice of Greek Composition of various stages of difficulty, and will meet on Fridays, at 3.30 and 4.30. More advanced students will be taken separately at hours to be fixed at the commencement of the session.

FEE :—£1 11s. 6d.



*REQUIREMENTS IN LATIN AND GREEK FOR DEGREES.**Intermediate Arts Examination : Course I.\***B.A. Degree.*

- (i.) When Latin or Greek is a principal subject :  
Courses II\* and III in successive years.
- (ii.) When Latin or Greek is a subsidiary subject :  
*either* Course II\* *or* Course III.

*M.A. Degree.*

Course IV ; together with Course III, if not already taken for the B.A.

Candidates who offer either Latin or Greek alone will be required to show a general knowledge of the Language and Literature, and a special knowledge of *four* authors to be selected by themselves and approved by the University. Candidates who offer either Latin or Greek together with some other subject will be required to show a special knowledge of only *two* authors.

The subject of the dissertation required for the M.A. degree should be selected in consultation with the Professor as early in the Session as possible.

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\* Courses I and II may be taken in the reverse order (Course II followed by Course I).

## TIME TABLE

LATIN.	Mon.	Tues.	Wed.	Thurs.	Fri.
Preliminary Course—					
Section A ... ..	4.30	...	4.30	...	4.30
Section B ... ..	4.30	...	4.30	...	4.30
University Courses—					
Course I. ... ..	2.30	...	2.30	...	2.30*
Course II. ... ..	2.30	...	2.30	...	2.30*
Course III. ... ..	...	3.30	...	3.30	2.30*
Course IV. ... ..	3.30	...	3.30	...	3.30
GREEK					
Preliminary Course ..	3.30	..	3.30	3.30	...
University Courses—					
Course I. ... ..	...	2.30	...	2.30	3.30*
Course II. ... ..	...	2.30	...	2.30	3.30*
Course III. ... ..	4.30	...	4.30	...	4.30*
Course IV. † ... ..	...	4.30	...	4.30	...

\* Composition.

† The hours in this Course may be altered by arrangement.

## ENGLISH LANGUAGE AND LITERATURE.

*Professor* : W. MACNEILE DIXON, M.A.; Litt.D., LL.B.  
(Dub.)

*Lecturer* : R. PAPE COWL, M.A. (Dub.)

### PRELIMINARY COURSE.

A. Outlines of English History to 1815.

B. Outlines of English Literature to 1815, with special attention to the lives and works of the following authors :

Chaucer, Wyclif, Shakspeare, Bacon, Milton,  
Dryden, Locke, Addison, Pope, Swift,  
Johnson, Burke.

C. Grammar, including analysis and the simple outlines of the History of the English Language.

D. Composition.

E. Shakspeare's *Richard II.*

**Language and Literature.**—Mondays and Wednesdays, at 9.30.

FEE :—£2 12s. 6d.

**History.**—Tuesdays and Thursdays, at 9.30.

FEE :—£2 12s. 6d.

**Composition.**—In this Class there will be a study of Prose Composition. Members of the class will be expected to write Essays on the subjects from time to time suggested. The Lectures will be given during the Winter and Spring Terms at 2.30 on Tuesdays.

FEE :—£1 1s.

[The Sessional Fee for the whole Preliminary Course is £5 5s.]

### UNIVERSITY COURSES.

#### I.

A. Lectures upon the History of English Literature from 1350 to 1600, upon Literary Forms, and upon English Constitutional History.

B. The following texts :—

*Language and Literature.*

CHAUCER : *Prologue.*

SPENSER : *Faery Queen*, Bk. I.

SHAKSPERE :

*Midsummer Night's Dream.*

*Richard II.*

*Hamlet.*

*Palgrave's Golden Treasury*,  
Bk. I.

*Political Philosophy.*

MORE : *Utopia.*

BACON : *Essays Of Unity in Religion, Of Simulation and Dissimulation, Of Goodness and Goodness of Nature, Of Seditions and Troubles, Of Superstition, Of Empire, Of Counsel, Of Innovations, Of the True Greatness of Kingdoms and Estates, Of Custom and Education, Of Usury, Of Judicature.*

The lectures will be given on Mondays, Thursdays, and Fridays, at 10.30. The lectures on Constitutional History will be delivered by Professor Masterman on Tuesdays and Fridays, at 10.30 during the Winter term.

FEE :— £3 3s.

## II.

A. Lectures upon the History of English Literature from 1600 to 1740, and upon Literary Theory.

B. The following texts :—

*English Literature.*

SHAKSPERE : *Julius Caesar*,  
*Macbeth.*

Lamb's *Specimens of the Elizabethan Dramatists—Sackville and Norton, Kyd, Peele, Marlowe, Middleton, Webster, Ford, Jonson, Beaumont and Fletcher, Massinger.*

*Palgrave's Golden Treasury*,  
Bks. II. and III.

MILTON : *Paradise Lost*, Bks. I. and II.

DRYDEN : *Absalom and Achitophel.*

POPE : *Essay on Criticism.*

BERKELEY : *Principles of Human Knowledge.*

*Literary Theory.*

ARISTOTLE : *Poetics* (in translation).

JOHNSON : *Life of Milton.*

COLERIDGE : *Lectures on Shakespeare.*

The lectures will be given on Tuesdays and Fridays at 11.30, and on Wednesdays at 9.30.

FEE :—£3 3s.

### III.

A. Lectures on the History of English Literature from 1740 to 1850, upon the English Language, and upon Literary Theory.

B. The following texts :—

#### *English Literature.*

SHAKSPERE : *Henry IV.* Pts. 1 and 2, *Tempest.*

COLLINS : *Poems.*

SHELLEY : *Adonais.*

WORDSWORTH : Matthew Arnold's Selections.

Palgrave's *Golden Treasury*, Bk. IV.

COLERIDGE : *Ancient Mariner*, *Christabel.*

CARLYLE : *The Hero as Man of Letters.*

TENNYSON : *In Memoriam*, *Ulysses*, *Lucretius.*

BUTLER : *Sermons* (with Preface) upon *Human Nature*, *Compassion*, *The Character of Balaam*, *Resentment*, *Forgiveness of Injuries*, *Self-Deceit*, *The Love of our Neighbour.*

#### *English Language.*

Selections from Chaucer and Middle English Writers, as read in Class.

#### *Literary Theory.*

COLERIDGE :

*Biographia Literaria* (parts relating to literary criticism).

ARNOLD : *Essays in Criticism* (First Series), omitting those on Spinoza and Marcus Aurelius.

The lectures will be given upon Mondays, Wednesdays, and Thursdays, at 11.30.

FEE :—£3 3s.

### IV.

Lectures are given upon the compulsory sections (A and B) of the M.A. Examination, and upon such other subjects as are offered by candidates for the M.A. degree.

The Lectures will be given on Tuesdays and Fridays at 12.30 p.m.

FEE :—£2 12s. 6d.

VACATION READING.—For the subjects recommended for Vacation Reading in English, see p. 308.

### REQUIREMENTS FOR DEGREES.

*Intermediate Arts Examination* : Course I.

*B.A. Degree.*

Students who take English as a principal subject at the B.A. Degree Examination are required to attend Courses II and III in successive years. Students who take English as a subsidiary subject may select either Course II or Course III.

*M.A. Degree* : Course IV.

Students who desire to take the M.A. Degree in English alone are required to pass an examination in *four* of the following subjects, of which A and B are compulsory :—

A. The History of English Literature.

B. The following texts :—

CHAUCER : *Knight's Tale, Troilus and Cressida.*  
SPENSER : *Shepherd's Calendar.* Tottel's Miscellany.  
SHAKESPERE : *Romeo and Juliet, King Lear, Anthony and Cleopatra, Winter's Tale.* MILTON : *Paradise Regained.* POPE : *Rape of the Lock.* WORDSWORTH : *Laodamia.* SHELLEY : *Prometheus Unbound.* KEATS : *Hyperion.* BYRON : *Childe Harold,* Cantos 1 and 2.  
ARNOLD : *Sohrab and Rustum.* BROWNE : *Religio Medici.* DRYDEN : *Essay on Satire.* JOHNSON : *Lives of Pope and Gray.* BURKE : *Appeal from the New to the Old Whigs.* LAMB : *Essays.* DE QUINCEY : *Confessions of an English Opium Eater.* RUSKIN : *Lectures on Art.* DOWDEN : *Shakspeare, his Mind and Art.*

C. Germanic Philology, with selected Anglo-Saxon and Middle English Texts, as read in Class.

D. Shakspeare.



E. English Literature studied in its relation either to Italian *or* French *or* German Literature.

F. Special study of some one period of Literature to be selected in consultation with the Professor.

G. Literary Theory. The following texts are recommended for study :—

ARISTOTLE : *Poetics*. DANTE : *De Vulgari Eloquentia*, Bk. II.  
 LESSING : *Laocoon*. DU BELLAY : *Defense et Illustration de la Langue française*. VICTOR HUGO : Preface to *Cromwell*. The critical writings of Sidney, Dryden, Johnson, Lamb, Coleridge, Wordsworth, and Arnold.

Students who select English as *one* of the subjects for the M.A. Degree are required to pass an examination in two of the above subjects, of which B is compulsory.

#### SCHOOL OF MODERN LANGUAGES.

Students who select English as a subsidiary subject are required to pass an examination in sections A, B and D of the foregoing list, together with an English Essay.

#### TIME TABLE.

ENGLISH.				Mon.	Tues.	Wed.	Thurs.	Fri.
Preliminary	...	...	9.30	9.30	9.30	9.30	9.30	...
Composition	...	...	...	2.30	...	...	...	...
Course I.	...	...	10.30	...	...	10.30	10.30	...
Course II.	...	...	...	11.30	9.30	...	11.30	...
Course III.	...	...	11.30	...	11.30	11.30	...	...
Course IV.	...	...	...	12.30	...	...	12.30	...

## FRENCH LANGUAGE AND LITERATURE.

*Professor:* CLOVIS BÉVENOT, M.A. ; M.A. (Oxon.).

*Assistant Lecturer:* PAUL DEMEY, L. ès-L.

### PRELIMINARY COURSE.

Tuesdays at 4.30, and Thursdays at 2.30 and 4.30. In this course students are prepared for the Matriculation Examination of the University of Birmingham, or of the University of London.

SUBJECTS: *Alphonse Daudet*, *Le Petit chose en Province* (Hachette), with *Spiers' Primer*, and *Rapid Exercises*.

FEE:—£3 13s. 6d.

### UNIVERSITY COURSES.

#### I.

(a) Wednesdays at 4.30 :

(i.) Reading and Translation of the following works :—

*Voltaire*, *Contes et Mélanges*. (Publ. Black).

*Rivarol*, *Discours sur l'Universalité de la langue française*.

*J.-J. Rousseau*, *Lettre à d'Alembert sur les spectacles*.

(ii.) A rapid general survey of French Literature, together with the special study of the 18th Century writers. These lectures will be delivered partly in French.

(b) Fridays at 11.30 : French Conversation, Dictation, and intelligent reading aloud.

(c) Mondays at 4.30 : French Accidence, Syntax, Idioms, and Composition.

Books recommended :—History and Literature of France by Prof. V. Spiers (Rivington); or Primer of French Literature by Prof. Weekley (Blackie).

FEE :—£3 13s. 6d.

## II.

The Lectures are given in French.

(a) Fridays at 10.30 : (i.) Advanced French Composition.  
(ii.) Rudiments of Philology.

(b) Wednesdays at 10.30 : French Conversation, Papers, and Debates.

(c) Mondays at 4.30 : French Literature.

(i.) The 17th Century with special preparation of :

*Corneille*, *Le Cid*.

*Bossuet*, *Oraison funèbre d'Henriette de France*,  
reine d'Angleterre.

*Racine*, *Andromaque*.

*Molière*, *Les Femmes Savantes*.

(ii.) Summary of the 17th, 18th, and 19th Centuries.

FEE :—£3 13s. 6d.

## III.

The Lectures are given in French.

(a) Mondays at 2.30 : (i.) Advanced French Composition and Essay writing, and Survey of French Metre and Prose Style. (ii.) French Philology.

(b) Wednesdays at 10.30 : French Conversation, Papers, and Debates.

(c) Fridays at 12.30 : French Literature from the earliest times to 1600, with special preparation of :

*Rabelais* : Bk. I., ch. 23, 24 ; Bk. II., ch. 8.

*Darmesteter* : *Ecrivains du 16<sup>e</sup> Siècle*.

*V. Hugo* : *Préface de Cromwell*; *Hernani*.

*Darmesteter* : *La Vie des Mots*.

FEE :—£3 13s. 6d.

## IV.

The Lectures are given in French.

(*a*) Fridays at 12.30 : The French Literature of the earliest times to 1600.

FEE :—£1 4s. 6d.

(*b*) Mondays at 2.30 : (i.) Advanced Composition and Essay Writing; French Metre and Style; (ii.) Philology.

FEE :—£1 4s. 6d.

(*c*) Tuesdays, at 10.30 : Some of the most noteworthy works dealt with in the Literature Lectures will be read and further discussed.

FEE :—£1 4s. 6d.

(*d*) Wednesdays at 10.30 : Papers, Conversation and Debates.

FEE :—£1 4s. 6d.

(*e*) Wednesdays at 11.30 : French Philology—Lectures on the principles and methods of the Science of Language and the History and Philology of the Romance Languages, with special reference to English and French.

FEE :—£1 4s. 6d.

(*f*) Thursdays at 3.30 : Interpretation, Philological and Critical Analysis of selected Texts of the 14th and 15th Century.

FEE :—£1 4s. 6d.

(*g*) Fridays at 11.30 : Interpretation, Philological and Critical Analysis of the earlier Texts.

FEE :—£1 4s. 6d.

(*h*) Mondays at 1.30 : Lectures on French History and Institutions. This course will consist of ten lectures, five of which will be given in the Winter Term (commencing in the first half of November) and five in the Spring Term.

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*REQUIREMENTS FOR DEGREES.**Intermediate Examination in Arts: Course I.**B.A. Degree.*

(a) When French is a Principal Subject : Courses II. and III. in successive years.

(b) When French is a Subsidiary Subject : Course II.

*M.A. Degree.*

(a) Candidates who desire to take the M.A. Degree in French alone will be required to take the following eight subjects :—

- (i.) French Essay and Composition.
- (ii.) Unseen Translation.
- (iii.) Selected Authors.
- (vi.) History of French Literature.
- (v.) French History and Institutions.
- (vi.) Old and Middle French Texts.
- (vii.) French Philology.
- (viii.) A selected period of French Literature.

(b) Candidates who desire to take the M.A. Degree in French together with another subject will be required to select four subjects from the above list, of which (i.) and (iii.) are compulsory.

## SCHOOL OF MODERN LANGUAGES.

The following Courses are recommended :

(a) If French is the principal subject :—

First year : Courses II, III, IV*e*.

Second year : Courses III, IV*a*, IV*c*, IV*g*, IV*f*.

Third year : Course IV.

(b) If French is the subsidiary subject :—

First year : Courses II and III*c*.

Second year : Courses III and IV*a*.

Third year : Courses IV*a*, *b*, *c*, *e*.

TIME TABLE.

FRENCH.				Mon.	Tues.	Wed.	Thurs.	Fri.
Preliminary	...	...	...	...	4.30	... {	2.30† 4.30	...
Course I.	...	...	...	4.30*	...	4.30	...	11.30†
Course II.	...	...	...	4.30*	...	10.30†	...	10.30
Course III.	...	...	...	2.30*	...	10.30†	...	12.30
Course IV.	...	...	{	2.30* 1.30	10.30	10.30† 11.30	3.30	11.30 12.30

\* Composition and Correspondence.

† Conversation (and Debates).



## GERMAN LANGUAGE AND LITERATURE AND GERMANIC PHILOLOGY.

*Professor* : HERMANN GEORG FIEDLER, M.A. ; Ph.D.

*Assistant Lecturer* : FRANCIS E. SANDBACH, B.A. ; Ph.D.

### PRELIMINARY COURSE.

Mondays, Wednesdays, and Fridays, at 2.30.

An Elementary German Reader and P. Heyse's *L'Arrabiata* (Heath & Co.) will form the centre of instruction, a knowledge of German Accidence and Elementary Syntax being acquired by way of reading. Composition, Dictation, and Conversation will also be practised, the Course covering preparation for the Matriculation Examination.

FEE :—£3 13s. 6d.

### UNIVERSITY COURSES.

#### I.

(a) Mondays at 3.30: German Accidence, Syntax, and Composition.

(b) Wednesdays at 3.30 : Conversation, Dictation, and Translation at sight.

(c) Thursdays at 3.30 : Reading and Translation of :—  
G. Keller, *Kleider machen Leute* (Heath & Co.) ;  
Th. Storm, *In St. Jürgen* (Heath & Co.)

FEE :—£3 13s. 6d.

#### II.

(a) Tuesdays at 2.30: Reading of :—Scheffel's *Ekkehard* (Whittaker & Co.) ; Selected Poems of Goethe, Schiller and Uhland.

(b) Wednesdays at 3.30 : Conversation, Dictation, and Translation at sight.

(c) Thursdays at 4.30 : Composition, Revision of Accidence and Syntax.

FEE :—£3 13s. 6d.

## III.

(a) Mondays at 4.30 : Reading of :—Schiller's *Wallenstein* and Goethe's *Egmont*.

(b) Wednesdays at 4.30 : Conversation based on Outline of German Literature.

(c) Fridays at 4.30 : Composition, Translation at sight.

FEE :—£3 13s. 6d.

## IV.

(a) Tuesdays at 3.30 : Lectures (delivered in German) on German Literature from the fifteenth to the eighteenth century.

FEE :—£1 11s. 6d.

(b) Tuesdays at 4.30 : Some of the more important works dealt with in the Literature Lectures will be read and further discussed.

Die Litteratur des 17 und 18 Jahrhunderts ausgewählt von  
G. Bötticher (Halle, a. S.) Lessing, *Laokoon* ;  
Schiller, *Braut von Messina* ; Goethe, *Götz von  
Berlichingen*.

FEE :—£1 11s. 6d.

(c) Fridays at 3.30 : Germanic Philology. Lectures will be given (in English) on the principles and methods of the Science of Language and the history and philology of the Germanic languages, with special reference to the relation of English and German. The Gothic version of the Gospels will be read.

FEE :—£1 11s. 6d.

(d) Fridays at 4.30 : Advanced Composition and Essay Writing.

FEE :—£1 11s. 6d.

(e) Mondays at 3.30 : Old High German Grammar, with Interpretation of selected O.H.G. texts.

FEE :—£1 11s. 6d.

(f) Thursdays at 2.30 : Introduction to the study of Middle High German and Historical German Grammar. Reading of easy M.H.G. texts.

FEE :—£1 11s. 6d.

(g) Wednesdays at 3.30: Interpretation of more difficult M.H.G. and sixteenth century texts.

FEE:—£1 11s. 6d.

(h) Mondays at 5.30: Lectures on German History and Institutions. This course will consist of ten lectures, five of which will be given in the Winter Term (commencing November 12th), and five in the Spring Term.

FEE:—10s. 6d.

#### REQUIREMENTS FOR DEGREES.

*Intermediate Examination in Arts: Course I.*

*B.A. Degree.*

(a) When German is a principal subject: Courses II and III, in successive years.

(b) When German is a subsidiary subject: Course II.  
*M.A. Degree.*

(a) Candidates who desire to take the M.A. Degree in German alone will be required to take the following *eight* subjects:—

- (i.) German Essay and Composition.
- (ii.) Unseen Translation.
- (iii.) Selected Authors.
- (iv.) History of German Literature.
- (v.) German History and Institutions.
- (vi.) Old and Middle High German Texts.
- (vii.) Germanic Philology.
- (viii.) A selected period of German Literature.

(b) Candidates who desire to take the M.A. Degree in German together with another subject will be required to select four subjects from the above list, of which (i.) and (iii.) are compulsory.

## SCHOOL OF MODERN LANGUAGES.

The following courses are recommended :

(a) If German is the principal subject :—

First year : Courses II, III, IVc.

Second year : Courses III, IVa, b, e, f.

Third year : Course IV.

(b) If German is the subsidiary subject :—

First year : Courses II and IIIa.

Second year : Courses III and IVa.

Third year : Courses IVa, b, d, f.

## ANGLO-SAXON.

Elementary, Tuesdays at 5.30. Advanced, Wednesdays at 5.30, or by arrangement.

The books set for the various examinations in the University of London will be studied.

FEE :—£1 11s. 6d. for either course.

Students taking up the study of Anglo-Saxon should also attend the lectures on Germanic Philology (IV, c.).

FEE :—£1 11s. 6d.

## TIME TABLE.

GERMAN.	Mon.	Tues.	Wed.	Thurs.	Fri.
Preliminary Course ...	2.30	...	2.30	...	2.30
Course I. ... ..	3.30	...	3.30	3.30	...
Course II. ... ..	...	2.30	3.30	4.30	...
Course III. ... ..	4.30	...	4.30	...	4.30
Course IV. ....	{ 3.30 5.30	{ 3.30 4.30	3.30	2.30	{ 3.30 4.30
Anglo-Saxon ... ..	...	5.30	5.30	...	...

## PHILOSOPHY.

*Professor:* JOHN HENRY MUIRHEAD, M.A. ; M.A., Oxon.  
and Glasgow.

## UNIVERSITY COURSES.

## I.

## Logic.

The aim of this Course is to familiarise students with the general conditions of exact reasoning in ordinary life, experimental science and other forms of theoretical inquiry. A good deal of time is given to the analysis of arguments.

*Lecture Days:*—Mondays, Tuesdays and Thursdays, at 9.30.

NATURE AND SCOPE OF LOGICAL SCIENCE: Judging and Reasoning, and the General Laws that underlie them. General Analysis of Argument

DOCTRINE OF TERMS: Connotation and Denotation ; Kinds of Terms ; Singular and General, Positive and Negative Terms ; Definition and Division as aids to Thought.

PROPOSITIONS : The Interpretation of Propositions ; Kinds of Proposition ; Categorical, Hypothetical, Disjunctive Propositions ; Opposition and Implication of Propositions.

INFERENCE: General Nature of Inference ; Deductive and Inductive Inference.

FORMS OF DEDUCTIVE INFERENCE: Construction and Syllogism ; Syllogistic Inference ; Laws and Forms of Categorical Syllogism ; Conditional and Disjunctive Syllogism ; Trains of Reasoning ; Fallacies of Syllogistic Inference ; Non-Syllogistic Inference.

INDUCTION : General Nature and Range of Induction ; Cause and Effect as type of Natural Law ; Analysis of Idea of Cause ; Suggestion of Law on ground of superficial Agreement and of General Resemblance ; Verification by Experimental and Observational Methods ; The Deductive Method ; Hypothesis and Theory.

SYSTEM IN KNOWLEDGE ; Explanation ; Definition and Classification.

FEE :—£3 3s.

PREPARATORY READING.—Students intending to take this course should make themselves familiar with Jevons's

*Primer* (Macmillan), and if possible with the first nine chapters in Carveth Read's *Logic Deductive and Inductive* (Grant Richards).

## II.

### Psychology.

The aim of this Course is to give such an analysis of the chief elements in consciousness as may form an introduction to Mental Philosophy on the one hand and to the Science and Practice of Education on the other.

*Lecture Days*.—Mondays, Wednesdays and Fridays, at 12.30.\*

SCOPE AND METHOD OF THE SCIENCE: What is meant by Mind; Consciousness and Subconsciousness; Relation of Psychology to other Sciences; Psychological Methods.

BODY AND MIND: Outlines of Nervous System†; Relation of Body and Mind.

GENERAL ANALYSIS OF MIND: Knowledge, Feeling, and Action as Modes of Consciousness; their general relation to one another.

KNOWLEDGE (i.): Elementary processes implied in Knowledge; Attention, Retention and Habit; the Senses, General Treatment; Special Treatment of Touch and Vision; Perception: our knowledge of Things in Space and Time; Ideas; Memory and its laws; Imagination. (ii.): Conception; Judgment and Reasoning; Relation of Language to Thought; the Categories; the Idea of a Physical World; the Idea of Self.

FEELING: General Nature and Conditions of Pain and Pleasure; relation to Desire, Volition, Emotion; the Emotions and their Expression; Definition and Classification of Emotion; the Sentiments.

ACTIVITY: Instincts; Imitation; Habits; Voluntary Action; Desire and Motive; Deliberation and Choice; Conduct and Character.

FEE:—£3 3s.

PREPARATORY READING.—Students intending to take this course should read James's *Text-Book of Psychology* (Macmillan).

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\*NOTE.—These hours may be altered to suit the convenience of Students.

†Students taking Psychology as a principal subject for the B.Sc. Degree will be required to attend a course of Lectures on the Psychology of the Nervous System.



## III.

## Moral Philosophy.

The aim of this Course is to treat the ideas that underlie typical Ethical Systems as elements in human culture, and thus to be of use to Students of Literature and of the History of Educational Ideas as well as of Philosophy in General.

*Lecture Days*.—Mondays, Wednesdays\* and Fridays, at 10.30.

THE PROBLEM OF MORAL PHILOSOPHY : Methods of Study ; the Historical Method.

HISTORICAL ORIGIN OF THE PROBLEM in Greece : The Sophists ; Socrates and the Socratic Schools.

TYPES OF ANCIENT THEORY : Plato and Aristotle ; Stoics ; Epicureans ; Neo-Platonism.

THE STARTING-POINT OF MODERN PHILOSOPHY : Self-Consciousness and the Rights of the Individual.

TYPES OF MODERN THEORY : Hobbes ; Butler ; Hume ; Bentham and Mill ; Kant.

RECENT THEORY as modified by the Idea of Evolution : Spencer ; L. Stephen ; Green.

FEE :—£3 3s.

PREPARATORY READING.—Students intending to take this course should read Sidgwick's History of Ethics (Macmillan).

## IV.

Lectures on the subjects required for the M.A. Examination. By arrangement.

## REQUIREMENTS FOR DEGREES.

*Intermediate Examination in Arts* : Course I.

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\* Should any students desire to take French for the B.A. Degree at this hour special arrangements will be made for their accommodation.

*B.A. Degree.*

1. For Candidates taking Philosophy as a subsidiary subject, having already taken Logic at the Intermediate : either Course II or Course III. For candidates who have not taken Logic : either Course I, along with Bosanquet's *Essentials of Logic*, or Course II, or Course III.

2. For Candidates taking Philosophy as a principal subject, having already taken Logic at the Intermediate Examination : Courses II and III in successive years.

For Candidates who have not taken Logic at the Intermediate Examination, any two of Courses I, II, III, in successive years, with book work as above.

*B.Sc. Degree.*

1. For Candidates taking Psychology as a subsidiary subject : Course II, with Külpe's *Outlines of Psychology*, Part I.

2. For Candidates taking Psychology as a principal subject : Course II, with Külpe's *Outlines of Psychology*, and sections 3, 6, 7 of Course I in *Systematic Physiology*.

*M.A. Degree.*

1. Candidates taking Philosophy alone for the M.A. Degree will be examined in :

- (1) **PSYCHOLOGY** : Ward's *Article on Psychology* (*Encyclop. Brit.*) ; Stout's *Analytic Psychology and Manual of Psychology* ; James's *Principles of Psychology*.
- (2) **LOGIC AND METAPHYSICS** : Mill's *System of Logic* ; Bradley's *Logic* ; Bosanquet's *Logic* ; Bradley's *Appearance and Reality* ; Wallace's *Logic of Hegel with Prolegomena*.
- (3) **MORAL AND POLITICAL PHILOSOPHY** : Plato's *Republic* ; Aristotle's *Ethics* ; Kant's *Theory of Morals* (Abbott) ; Green's *Prolegomena to Ethics* ; Hegel's *Philosophy of Law* (Dyde's English Translation).
- (4) **The General History of Philosophy**, together with the special history of one of the above departments of Philosophy.

2. Candidates taking Philosophy together with another subject for the M.A. Degree will be examined in :

- (1) PSYCHOLOGY : Ward's Article on Psychology (Encyclop. Brit.); Stout's Analytic Psychology and Manual of Psychology.
- (2) LOGIC AND METAPHYSICS : Mill's System of Logic ; Bradley's Logic ; Bosanquet's Logic.
- (3) MORAL PHILOSOPHY: Aristotle's Ethics ; Green's Prolegomena to Ethics ; Hegel's Philosophy of Law (Dyde's English Translation).
- (4) The General History of Philosophy.

TIME TABLE.

PHILOSOPHY.	Mon.	Tues.	Wed.	Thurs.	Fri.
Course I. ... ..	9.30	9.30	...	9.30	..
Course II. ... ..	12.30	...	12.30	...	12.30
Course III. ... ..	10.30	...	10.30	...	10.30
Course IV. ... ..	...	<i>( By arrangement. )</i>			...

# THEORY AND PRACTICE OF EDUCATION.

*Professor :*

*Lecturers :* FRANK ROSCOE.

ANNE HOLLINGWORTH JOYCE.

## UNIVERSITY COURSES.

### I.

#### ELEMENTARY COURSE IN PSYCHOLOGY AND LOGIC.

*Professor :* J. H. MUIRHEAD.

*Lectures :—*Tuesdays, at 10.30, Fridays, at 9.30.

#### Syllabus.

##### WINTER TERM.

Body and Mind. Elements in Mind. The Senses and their Training. Perception and Observation. Ideas and their Sequence. Memory and the Training of Memory. Fancy and Imagination.

##### SPRING TERM.

Conception and Thinking. Language and Conception. Connection of Concepts in Reasoning. Inductive and Deductive Reasoning. Syllogism. Analogy. Analysis by Observation and Experiment. Hypothesis and Verification.

##### SUMMER TERM.

Feeling and the Feelings. Conditions and Effect of Feeling in general. Emotion and its Expression. The Sentiments and their Training. Interest. Instinct. Will and Conduct. Habit and Character.

TEXT BOOK RECOMMENDED.—James's Text Book of Psychology (selected chapters).

During the Summer Term lectures will be given in connection with this Course on Plato's Republic, Books II-IV. (Bosanquet's Education of the Young). Hour to be arranged.

FEE :—£2 2s.

## II.

## THEORY AND PRACTICE OF TEACHING.

*Lectures* :—Wednesdays, 10.30 and 12.

*Tutorial Classes* :—Tuesdays, 10.30 ; Mondays, 12.

*Criticism Lessons* :—Tuesdays, 2 to 4 ; Fridays, alternately, 9.30 to 11.30 and 2 to 4.

These hours are for women students ; they are subject to alteration in case of the men students.

The Course in Theory and Practice of Teaching includes in addition to the above not less than 75 hours of school practice per year.

The whole Course may extend over two years.

## Syllabus.

## WINTER TERM.

Aims of Education, past and present. Development of Modern Ideals of Education. Interest and its bearing on Education. Method : Necessary Stages of Rational Method. Apperception of Individual Notions. Transition from Individual to General Notions. The Return from General to Individual Notions. Theory of the "Five Formal Steps." Notes of Lessons.

## SPRING TERM.

Curricula and choice of subjects of instruction. Humanistic studies. General treatment. Mother tongue. History. Literature. Foreign Language. Drawing. Naturalistic studies. General treatment. Object lessons. Elementary science lessons. Geography. Arithmetic and Geometry. Association of studies. Concentration schemes.

## SUMMER TERM.

Physical education, aims and methods. School organisation and administration. School Hygiene. Discipline, its basis, practical aids.

## TEXT BOOKS RECOMMENDED —

Talks to Teachers : James.

School Hygiene : Hope and Brown.

Teaching and Organisation : P. A. Barnett.

FEE :—£4 4s.

## III.

## HISTORY OF EDUCATIONAL IDEAS.

*Lectures* :—Tuesdays, 11.30 ; Thursdays, 11.30.

*Tutorial Class* :—One hour per week by arrangement.

## Syllabus.

## WINTER TERM.

Greek Education. Theories of Plato and Aristotle. Music and Gymnastic. Higher education.

Mediaeval Education : Scholasticism. Trivium and Quadrivium. Rise of Universities. Vittorino da Feltre. Erasmus. Luther.

## SPRING TERM.

The Renaissance. Classicism. Teaching of Language. Sturm. Ascham. Mulcaster. Jesuits. Jansenists. Ratké. Revolt from Classicism. Rabelais. Montaigne. Comenius. Milton.

## SUMMER TERM.

18th and early 19th Century. Return to Nature. Rousseau. Pestalozzi. Froebel. Bell. Lancaster.

19th Century Theories. New Ideas. Development. Rise of Scientific Psychology. Bain. Spencer. Herbart. Modern tendencies.

In addition to the above course, Candidates will be required to undertake the detailed study of a special period in connection with prescribed books.

Special period for 1903 : The Renaissance.

## TEXT BOOKS RECOMMENDED :

General : History of Pedagogy (Compayré).  
Educational Reformers (Quick).

For Special Period : Vittorino da Feltre (Woodward).  
Readings in Rabelais (Besant).  
The Renaissance in Italy, Part II.  
(J. A. Symonds).

FEE :—£3 3s.

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REQUIREMENTS FOR DEGREES.

Intermediate Science or Arts Examination : Courses I and II.

B.Sc. or B.A. Degree (subsidiary subject) : Course III.

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## HISTORY.

*Professor* : J. H. B. MASTERMAN, M.A., Cantab.

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### LECTURE COURSES.

#### I.

#### Modern European History.

*Lecture Days* : Mondays and Wednesdays at 11.30.

##### WINTER TERM.

THE ERA OF REVOLUTION, 1789-1815. Europe in 1789.  
The French Revolution. Rise and Career of Napoleon.  
The Congress of Vienna.

##### SPRING TERM.

THE ERA OF REACTION, 1815-1860. Metternich and the  
Holy Alliance. Revolutions of 1830 and 1848.  
Napoleon III. The Crimean War. The Union of Italy.

##### SUMMER TERM.

THE ERA OF PROGRESS. The Founding of the German  
Empire. The American Civil War. Modern Europe  
and its problems.

FEE :—£2 12s. 6d.\*

#### II.

#### British Institutions.

*Lecture Days* : Tuesdays and Fridays at 10.30.

##### WINTER TERM.

THE ENGLISH CONSTITUTION : King and Parliament ; the  
Cabinet.

##### SPRING TERM.

THE ENGLISH CONSTITUTION. Local Government. Judica-  
ture. Scottish and Irish Local Government ; the  
Privy Council.

##### SUMMER TERM.

COLONIAL CONSTITUTIONS. Constitutional System of the  
United States. Imperial Federation.

FEE :—£2 12s. 6d.\*

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\*If Course I be taken together with Course II, the fee for the  
two together will be £4 4s.

## III.

## The Decline and Fall of the Roman Empire.

*Lecture Days:* Tuesdays and Thursdays at 11.30.

## WINTER TERM.

The Empire in the First Century; administrative system; religious and social conditions. History of the Empire to the accession of Diocletian.

## SPRING TERM.

History of the Empire from the accession of Diocletian to the death of Constantine. Rise and progress of Christianity to Council of Nicea.

## SUMMER TERM.

History of the Empire from the death of Constantine to the fall of the Western Empire in A.D. 476.

FEE:—£2 12s. 6d.

These lectures are open to any persons desiring to attend them, whether they are students of the University or not.

## TEXT BOOKS.

For the lectures to be delivered in the winter term the following text books are recommended, and should, if possible, be read before the beginning of the Course:—

For Course I.: Morse Stephens. *Revolutionary Europe*. (Longmans). 7s. 6d.

For Course II.: Gibbon. *Decline and Fall of the Roman Empire* (to accession of Diocletian).

For Course III.: Medley. *English Constitutional History* (chapters ii.—vi.). Simpkin Marshall. 10s. 6d.

Or Fielden's *Short Constitutional History of England* 6s. Blackwell.

Further recommendations as to reading will be given at the lectures.

## TIME TABLE OF PRELIMINARY CLASSES.

CLASS.	Mon.	Tues.	Wed.	Thurs.	Fri.
Mathematics .....	10.30	10.30	...	10.30	10.30
Mechanics.....	...	11.30	...	11.30	...
Mechanics (Practical)..... {	11.30 2.30	...	...	...	...
Chemistry (Winter & Spring)	...	...	11.30	...	11.30
Physiography (Matriculation) }	...	3.30	...	3.30	...
Physiography (Advanced) ..	3.30	9.30	...	...	...
Botany (Winter & Spring)...	...	...	...	11.30	...
Botany (Summer) .....	...	11.30	...	11.30	...
* Animal Biology .....	...	...	...	...	...
Geography (First Year).....	...	3.30	...	3.30	...
Geography (Second Year)...	3.30	9.30	..	...	...
Geology (Winter & Spring)	...	...	...	2.30	...
Geology (Advanced) Winter and Spring }	...	...	...	3.30	...
Local Geology (Summer) ...	...	...	...	2.30	...
Latin A and B.....	4.30	...	4.30	...	4.30
Greek .....	3.30	...	3.30	3.30	...
English Language and Literature .....	9.30	...	9.30	...	...
English History .....	...	9.30	...	9.30	...
English Composition (Winter and Spring) }	...	2.30	...	...	...
French I. ....	3.30	...	3.30	2.30	...
French II. ... {	...	4.30	...	4.30 2.30	...
German.....	2.30	...	2.30	...	2.30

\* Saturdays at 11.30 a.m

## TIME TABLE

*For Students preparing for Intermediate Examination  
in Arts.*

SUBJECT.	Course	Mon.	Tues.	Wed.	Thurs.	Fri.
Latin... ..	I.	2.30	...	2.30	...	...
" (Composition)	...	...	...	...	...	2.30
Greek... ..	I.	...	2.30	...	2.30	...
" (Composition)	...	...	...	...	...	3.30
English... ..	I.	10.30	...	...	10.30	10.30
French... ..	I.	4.30	...	4.30	...	11.30
German... ..	I.	3.30	...	3.30	3.30	...
Pure Mathematics ...	I.	12.30	11.30	...	11.30	12.30
Logic... ..	I.	9.30	9.30	...	9.30	...

## TIME TABLE

*For Students preparing for B.A. and M.A. Examinations.*

SUBJECT.	Course	Mon.	Tues.	Wed.	Thur.	Fri.
Latin ... ..	II.	2.30	...	2.30	...	...
" ... ..	III.	...	3.30	...	3.30	...
" ... ..	IV.	3.30	..	3.30	...	...
" (Composition)	...	...	...	...	...	2.30
Greek ... ..	II.	...	2.30	...	2.30	...
" ... ..	III.	4.30	...	4.30	...	...
" ... ..	IV.	...	4.30	...	4.30	...
" (Composition)	...	...	...	...	...	{ 3.30 4.30
English ... ..	II.	...	11.30	9.30	...	11.30
" ... ..	III.	11.30	...	11.30	11.30	...
" ... ..	IV.	...	12.30	...	...	12.30
French ... ..	II.	4.30	...	10.30	...	10.30
" ... ..	III.	2.30	...	10.30	...	12.30
" ... ..	IV.	{ 1.30 2.30	10.30	{ 10.30 11.30	3.30	{ 11.30 12.30
German ... ..	II.	...	2.30	3.30	4.30	...
" ... ..	III.	4.30	...	4.30	...	4.30
" ... ..	IV.	{ 3.30 5.30	{ 3.30 4.30	3.30	2.30	{ 3.30 4.30
Pure Mathematics...	II.	9.30	9.30	...	9.30	9.30
" " ... ..	III.	9.30	9.30	...	9.30	9.30
Applied " ... ..	I.	10.30	10.30	...	10.30	10.30
" " ... ..	II.	11.30	12.30	...	12.30	11.30
Philosophy ... ..	II.	12.30	...	12.30	...	12.30
" ... ..	III.	10.30	...	10.30*	...	10.30

## FACULTY OF COMMERCE.

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The instruction provided by the Faculty of Commerce furnishes a systematic training, extending over a period of three years. It consists of courses of study of two kinds. Some deal with subjects which are primarily of concern to the future man of business, but which are nevertheless capable of being made the instruments of a true education. Others deal with subjects which have long been recognised as elements of liberal culture, and yet are peculiarly valuable for those who are to be engaged in commerce and manufacture. While certain parts of the curriculum are believed to be serviceable for all classes of business men, and are prescribed for all students in the Faculty, other parts are so arranged as to allow a large freedom of choice, in accordance with the prospects, interests and aptitudes of the individual students.

Students who have been matriculated in the University, and have acquitted themselves with credit in the requisite class-work and examinations, will be entitled to the Degree of Bachelor of Commerce. Students may matriculate on passing the Matriculation Examination of the University, or on producing evidence that they have passed one of the examinations which the University accepts in lieu thereof. A schedule of the exempting examinations is given in the Regulations for Matriculation.

The requirements in the several subjects of the Matriculation Examination are the same for all Faculties, and will be found in the Regulations for Matriculation. The number of subjects is also the same ; but the list from which selection can be made by students who propose to matriculate in the Faculty of Commerce is in some respects wider, in others narrower, than in the case of the other Faculties.



Every candidate in the Faculty of Commerce must pass in five subjects before he is allowed the next University Examination, viz. :—

- (1) English Language, Literature and History.
- (2) Any two Languages out of the following :—  
French, German, Italian, Spanish, Latin.

[It is very desirable that students should enter upon their work in the Faculty of Commerce with an elementary knowledge of *two* modern foreign languages ; but, for the present, Latin and *one* modern foreign language will be accepted for Matriculation.]

- (3) Mathematics.
- (4) One Science subject chosen from the following :—  
Mechanics, Chemistry, Physiography.

The character of the examinations in Italian and Spanish, when these languages are offered, will be the same as in French and German. For prepared work, *either* Bersezio, *Il Cane del Cieco* (Richter, Davos), or Silvio Pellico *Le Mie Prigioni*, may be offered in Italian, or Cervantes, *The Adventure of the Wooden Horse and Sancho Panza, Governor of Barataria* (Clarendon Press) in Spanish, or any other books of similar length and difficulty.

But although students will not be allowed the next University Examination until they have passed in five subjects, they may be matriculated in the Faculty of Commerce on passing the Matriculation Examination in (1) English, (2) Mathematics, (3) one of the prescribed Languages, and (4) *either* a Science or another Language. The deficiency must subsequently be repaired by passing in the fifth subject.

Attention is called to the fact that there are other subjects, besides these examined upon at Matriculation, which may advantageously be studied at school by boys looking forward to business pursuits. Thus skill in Freehand and Geometrical Drawing will in many cases be found of practical advantage in after life ; and a know-

ledge of Shorthand will be found especially useful by boys whose careers depend entirely on their own ability and exertions.

All students who propose to enter upon the curriculum leading to the degree of Bachelor of Commerce, are required to call upon the Dean of the Faculty of Commerce at the University, on the morning of any day between September 22nd and September 30th (inclusive), between 10 a.m. and 1 p.m., to inform him as to their previous training, and to consult with him as to their choice of studies. Students unavoidably prevented from meeting him at those times are requested to communicate with him by letter, on, or as soon as possible after, September 22nd, to arrange an interview.

It is unwise for boys who desire a higher commercial education to leave school before they can pass the Matriculation Examination. And even after passing that Examination, students may be too immature to benefit by a training which calls for the constant exercise of judgment. Accordingly, although no age limit will be set, and every case will be determined upon its merits, the Faculty of Commerce reserves the right of postponing the admission of students who appear insufficiently mature in mind and character to benefit by the instruction. Such students may be advised to spend a preliminary year in a workshop or counting-house. The same plan may properly be recommended in some cases to students who look forward to entering businesses in which early practical training is desirable.

#### CURRICULUM FOR THE DEGREE OF B. COM.

Candidates for this degree are required to have attended the following courses of study, and to have passed the University Examinations thereon at the end of each of the three years. There will be a *vivâ voce* examination in foreign languages in each year; and also in such other subjects in the Third, and final, Examination as the Examiners may determine. Candidates may offer themselves for the whole or any part of the

Examination in any year. The names of those who pass in each subject will be arranged in three classes, alphabetically in each; and the subjects taken by each student will be recorded on the degree *testamur*, with the class obtained in each. Only matriculated students will be admitted to University Examinations (in which External Examiners co-operate with the University staff). The class examinations, to which non-matriculated students will be admitted, will be conducted by the University staff alone, and the certificates will contain no distinction of classes. The content of the several courses will be learnt from the syllabuses which follow the curriculum; and (in the case of courses in Modern Languages and Science) from those in the announcements of the Faculties of Arts and Science.

#### FIRST YEAR.

1. Commerce I. Two papers.
  2. Any two of the following modern Languages : French, German, Spanish, Italian. Two papers in each.
  3. Accounting I. One paper.
  4. European History since the French Revolution. Two papers.
  5. One of the following :
    - (1) Mathematics.
    - (2) Physics.
    - (3) Chemistry.
    - (4) Logic.
- Or two of the following :
- (5) Geography.
  - (6) Elementary Psychology and Logic.
  - (7) British Institutions.

*Languages.*—The examination in French or German at the end of the first year will be the same as that for the Intermediate Examination in Arts. Students, therefore, who select either of these languages and are unable from want of preparation, to benefit by the first

University course, will begin with the preliminary course, and will be expected to give a larger proportion of their attention to the language in which they are backward in order to make up the deficiency as rapidly as possible.

Provision will be made for instruction in Spanish or Italian. Students who wish to select these languages are requested to communicate with the Dean of the Faculty of Commerce a few days before the opening of the Session.

*Mathematics.*—Either Pure Mathematics, Course I., or Applied Mathematics, Course I.

*Physics and Chemistry.*—The courses to be taken in these subjects by those students in the Faculty of Commerce who select them will be determined after consultation with the Dean of the Faculty of Commerce, upon consideration of the needs and purposes of the individual students. When the course arranged involves less expenditure of time on the part of the student than Physics I. or Chemistry I., supplementary work in other subjects will be required, and must be planned after consultation with the Professor of Commerce.

*Geography.*—See the syllabuses of the Faculty of Science.

*Logic.*—See the syllabuses of the Faculty of Arts.

*Elementary Psychology and Logic.*—See the syllabuses of the courses on Education.

For Commerce, Accounting, European History, and British Institutions, see the syllabuses below.

#### SECOND YEAR.

1. Commerce II. Two papers.
2. Languages, as in the First Year. Two papers in each.
3. Accounting II. One paper.
4. Public Finance. One paper.
5. Economic Analysis. One paper.

6. *One* of the following :

- (1) Mathematics.
- (2) Physics.
- (3) Engineering.
- (4) Metallurgy.

Or *two* of the following :

- (5) Geography or Geology.
- (6) Ethics and Social Philosophy.
- (7) History and Institutions of France.
- (8) History and Institutions of Germany.
- (9) History and Institutions of Spain and Spanish America.

*Languages.*—Students can in this year select only those languages on which they have passed the examinations of the previous year, or in which they can already show, to the satisfaction of the Professor of the language, the same proficiency as is demanded at the First University Examination. The work in each language will include Conversation, Dictation, Translation at Sight, Composition and Lectures on the History of Literature. The books read will consist, in the earlier part of the session, of literary masterpieces, in the later part of the session, of typical examples of foreign, commercial, and industrial literature. The object of the course is to enable the student to keep abreast in future of commercial and industrial changes in other countries by consulting current foreign publications.

*Mathematics.*—Either Pure Mathematics, Course II. or Applied Mathematics, Courses I. or II.

*Physics, Engineering, Metallurgy.*—The courses to be taken in these subjects by those students who select them will be determined after consultation with the Dean of the Faculty of Commerce, upon consideration of the needs and purposes of the individual students.

*Geography or Geology.*—See the syllabuses of the Faculty of Science.



*Ethics and Social Philosophy.*— See the syllabuses of the Faculty of Arts.

*History, &c., of France, Germany, and Spain.*— These courses can only be selected by students who are taking the corresponding language courses, or have reached a proficiency in the corresponding languages equal to that required in the Second University Examination in the Faculty of Commerce.

For Commerce, Accounting, Public Finance, and Economic Analysis, see the syllabuses below.

### THIRD YEAR.

1. Commerce III. Two papers.
2. Languages, as in the previous years. One paper in each.
3. Accounting III. One paper.
4. Commercial Law. One paper.
5. Transport. One paper.
6. Subjects involving six papers, selected from the following list :—
  - (1) Technique of Trade. Two papers.
  - (2) Money, Credit, Banking and International Exchange. Two papers.
  - (3) Methods of Statistics. One paper.
  - (4) Factory Hygiene and Legislation. One paper.
  - (5)
 

<ol style="list-style-type: none"> <li>i. Physics.</li> <li>ii. Chemistry.</li> <li>iii. Engineering.</li> <li>iv. Metallurgy.</li> <li>v. Economic Geology.</li> <li>vi. Electro-technics.</li> <li>vii. Brewing.</li> <li>viii. Mining.</li> </ol>	}	Two subjects at most from this list.
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Students looking forward to a specifically *mercantile* life are recommended to select the courses numbered (1) to (3) under 6. Those looking forward to a *manufacturing* career are recommended to take (4); and, after consideration of their capabilities and prospects, they may be wise in making a selection among the courses i. to viii. under (5). The details of this year's work will be announced later.

*Languages.*—The work in this year will deal with Commercial Correspondence; though in exceptional cases, with the consent of the Dean of the Faculty, the study of the literature of some particular branch of business in the languages selected (*e.g.* on Engineering, Mining, Railway Administration, Municipal Administration) may be substituted. Students will be allowed to select the course in Commercial Correspondence only in those languages in which they have reached the proficiency demanded at the First University Examination.

*Scientific and Technical Subjects in (5).*—The courses to be taken in these subjects by those students who select them will be determined after consultation with the Dean of the Faculty of Commerce. The purpose in this, as in the previous years, is to give the future man of business such a knowledge of the processes of manufacture as may be useful to one whose chief interest nevertheless is on the commercial side. Most of the courses mentioned under (5) are more definitely technical or professional than those in the previous years; but no student will be admitted to a course involving preliminary knowledge unless that knowledge has been previously acquired. The arrangements with the several Professors in the Faculty of Science will be made through the Dean of the Faculty of Commerce.

*Factory Hygiene and Legislation.*—Particulars of this course will be announced later.

For Commerce, Accounting, Commercial Law, Transport, Technique of Trade, Money and Banking, and Methods of Statistics, see the syllabuses below.

## FEES :

The Composition Fee for the whole curriculum will be £21 each year. This includes the Membership Fee of £1 1s.

				£	s.	d.
Matriculation	...	...	...	2	0	0
First Examination	...	...	...	3	0	0
Second Examination	...	...	...	3	0	0
B. Com.	...	...	...	3	0	0

Each of the classes in the Faculty of Commerce is open to all persons who are capable of taking advantage of the instruction offered, whether they have matriculated or not; and pass-certificates will be granted to non-matriculated students at the end of each session on the results of the class examinations.

The conditions of admission in the case of non-matriculated students are identical with those for similar students in the Faculties of Science and Arts. They include Registration in the Secretary's office, the payment of a variable Membership Fee (*e.g.*, for a single course running through the whole session, 10s. 6d.), and the payment of Fees for the particular courses selected (given below with the several syllabuses).

But although only students who have been matriculated can become candidates for the degree of Bachelor of Commerce, non-matriculated students can at any time qualify for the degree by passing the Matriculation and other University Examinations, without further attendance upon courses already taken by them; *provided that*, before receiving the degree, they have attended all the required courses, and have devoted to study within the University an amount of time equivalent to three continuous years.

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## SYLLABUSES OF COURSES.

## COMMERCE AND PUBLIC FINANCE.

*Professor* : W. J. ASHLEY, M.Com. ; M.A. (Oxon.), late  
Fellow of Lincoln College, Oxford.

*Lecturer* :

## COMMERCE.

## COURSES I. AND II.

I.—FIRST YEAR : The British Empire, with particular regard to existing circumstances in the colonies and dependencies.

Two hours weekly, by arrangement.

A number of Special Reports will also be called for from each student, upon topics assigned to him for investigation.

FEE :—£4 4s.

II.—SECOND YEAR : The United States, Germany, Russia, France, other European countries, South America, &c.

FEE :—£4 4s.

These courses will set forth the modern development and the present structure and position of industry and trade in the leading countries of the world. This will involve a consideration of geographical position and natural resources on the one side, and, on the other side, of the supply and organisation of capital and labour, and of the state of the mechanical arts ; and the courses will lead up to a critical account of international commercial relations.

Commercial History and Commercial Geography will be largely introduced ; but they will be treated in relation to one another, and in close connection with the discussion of the problems of the present.

## COURSE III.

THIRD YEAR : Business Policy, in its main principles, as indicated by industrial and commercial experience.

FEE :—£5 5s.

The course will deal with such topics as the following: The Location and Laying-out of Works and Offices; Capitalization; Production on Large and Small Scale; Differentiation and Consolidation of Manufactures; Combinations of Manufacturers or Merchants; Limited Companies, Private and Public,—their Advantages and Disadvantages; Factoring and Manufacturing; Machinery—its Financial and Industrial Consequences; Works Management; Relations of Employers and Employed, Methods of Remuneration, Hours of Labour; Markets; Advertising; Negotiation; Relation of Selling Price to Cost, Fixed Charges; Methods of Sale and Purchase; Credit; Goodwill; and Trade Cycles.

### **PUBLIC FINANCE.**

#### **SECOND YEAR.**

**FEE:—£1 11s. 6d.**

This course will treat of Public Expenditure, Public Revenue and Public Credit, as illustrated especially in the national, county and municipal experience of Great Britain. It will discuss the principles and methods of Taxation, and the methods of contracting and extinguishing Debt; and it will include a comparison with foreign systems of raising revenue.

Students will examine the last British Budget, and will read a number of the more important Budget speeches of recent decades.

The course is recommended to students who propose to enter, or are already engaged in, municipal or banking service.

### **TRANSPORT.**

#### **THIRD YEAR.**

**FEE:—£1 11s. 6d.**

The course will give an outline survey of the various means of transportation, with a more particular treatment of railways—their development and organization. The forces influencing railway rates will be considered, and the attempts of various governments to control or manage

railways will be explained and criticised. Some attention will also be given to ocean freights; as well as to canals and other means of internal communication.

### **TECHNIQUE OF TRADE.**

THIRD YEAR.

FEE:—£4 4s.

This course will deal with the organization of the great staple markets and commercial institutions at home and abroad, the chief technical terms, and the most important mercantile documents. It will *not* seek to reproduce the minutiae of counting house practice.

### **MONEY AND BANKING.**

THIRD YEAR.

FEE:—£1 11s. 6d.

The functions and forms of Money; Credit instruments and their use; the functions of Banking and the organization of the English banking system as compared with those of the United States, and Germany; the Money Market; and the phenomena of International Exchange.

### **STATISTICS.**

THIRD YEAR.

FEE:—£1 11s. 6d.

This course is intended to serve as an exposition of the statistical methods most commonly employed rather than as a description of mere results. The chief governmental statistics of Great Britain, dealing with trade and manufactures, will be examined; and an attempt will be made to indicate, after a consideration of the mechanism for securing information employed in each case, the extent to which the results are of value, and the way in which they might be rendered more serviceable.

### **ECONOMIC ANALYSIS.**

SECOND YEAR.

FEE:—£1 11s. 6d.

This course will take a rapid survey of the whole of the wealth-producing and wealth-distributing activity of



society. It will seek to disentangle the larger forces at work, to direct attention to the complex relations of cause and effect, and to indicate the general causes and criteria of national prosperity. It will thus supplement the courses on Commerce by (1) emphasizing the general considerations only incidentally touched upon therein, and (2) connecting commerce with other sides of national life.

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## HISTORY.

*Professor* : J. H. B. MASTERMAN, M.A. (Cantab.)

### EUROPEAN HISTORY.

FIRST YEAR.

Two hours weekly, by arrangement.

FEE :—£2 12s. 6d.

This course will present the broad outlines of the political and constitutional history of Europe and America, since the French Revolution. Its object is to assist the student to realise the forces which have been at work in shaping the present condition of western society, and to realise the motives (other than those primarily economic) which now influence the policies of contemporary statesmen and parliaments.

### BRITISH INSTITUTIONS.

FIRST YEAR.

Two hours weekly, by arrangement.

FEE :—£2 12s. 6d.

In this course an account will be given of all the more important parts of the governmental machinery of the British Empire ; first of Great Britain and Ireland, from the Parish Council up through the District, Borough and County Councils to Parliament itself, together with the Judiciary and the central Executive Departments ; then of the chief self-governing daughter peoples—Canada, Australia, South Africa ; then of the Crown Colonies and India ; and finally of the Privy Council and other Imperial institutions.

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**ACCOUNTING.**

*Professor:* LAWRENCE R. DICKSEE, F.C.A.

**COURSE I. FIRST YEAR.**

Monday, 5.30 to 6.30.

FEE:—£1 11s. 6d.

Instruction in simple systems of book-keeping, explaining the meaning of Debit and Credit and the principle of Double Entry, and wherein it differs from Single Entry. The course will comprise a description of all usual subsidiary books, leading up to the account books proper. Such instruction will include an explanation of the Trial Balance, the Balance Sheet and Trade Account, and the meaning of "Capital" and "Revenue," and other terms used in book-keeping and accounts.

**COURSE I. A.**

Wednesday, 9.30 to 10.30, during the Winter Term.

The Professor of Mathematics will give a short course of lectures on the Theory of Compound Interest, Annuities and Sinking Funds, together with an explanation of the construction and use of Interest, Annuity, Life and Sinking Fund Tables. Opportunity will also be taken in connection with this course to give some training in rapid arithmetical methods. The course is recommended for Accountants, Surveyors and Actuaries, but is not obligatory on other students in the Faculty of Commerce.

**COURSE II. SECOND YEAR.**

FEE:—£3 3s.

This course will begin with a further explanation of the technique of Accounting. This will include:—(1) A description of the various forms of books suitable for different requirements, with an explanation of the sectional balancing of books. (2) An outline of the forms of Books and Accounts adapted to different classes of undertakings such as Banks, Public Authorities, Gas Works, Shipping Companies, Railways, Tramways, Collieries, Breweries, Manufacturers, Merchants, etc. (3) A description of the books and forms required in con-

nection with the Share Capital, Mortgages, and Debentures of Joint Stock Companies, and examples of Partnership Accounts.

This will be followed by an explanation of

- (1) Executorship Accounts, including Probate and Residuary Accounts ;
- (2) Bankruptcy, Liquidation and Receivership Accounts ;
- (3) The preparation of Accounts for Income Tax Returns and Appeals.

To this will be added a consideration of the checks and arrangements necessary to ensure accuracy in account books and the verification of accounts ; and a description will be given of Office and Works staff and organization so far as is necessary to make the methods of book-keeping properly intelligible.

Students may be exempted, with the consent of the Dean of the Faculty, from such parts of this course as are too special or technical for their individual requirements ; and a choice of questions will be allowed in the examination.

After this study of the mechanism of accounting, the work of the course will be directed to its higher purpose—to give students a grasp of principles which shall enable them to comprehend the significance of accounts, and understand the process by which the earnings and values of industrial properties are computed. This will include an analysis of Receipts, Disbursements, Assets and Liabilities, in various kinds of industry, and a consideration of Depreciation and Appreciation of Stock and Equipment, Interest, Sinking Funds, Reserve Fund, Reserves, Gross and Net Profit, Working Capital, and Goodwill, with an elementary treatment of Costing and Cost accounts. A number of published balance sheets will be studied, and students will be set exercises in their interpretation.

### COURSE III. THIRD YEAR.

FEE :--£4 4s.

The course will begin with a discussion of Statistical Accounts and of Head Office and Branch Accounts, and a consideration of systems for centralizing the book-keeping of Branches.

But it will be mainly devoted to a consideration of Departmental Book-keeping and Accounts, Stock and Stores Accounts, and advanced Costing and Cost Accounts, suitable for various undertakings.

Attention will be called to the several possible systems of Costing, and the merit and weaknesses of each; the several circumstances to be borne in mind in various typical businesses when constructing a system; and the necessary limitations of cost accounts.

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## COMMERCIAL LAW.

*Professor :*

THIRD YEAR.

FEE:—£3 3s.

Contracts; Agency; Partnership and Company Law; Bankruptcy; the Law of Cheques and Bills of Exchange; the Law of Patents; the Law of Master and Servant.

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## SCHOLARSHIP.

A Scholarship of the value of £30 per annum, given by members of the Dudley and District Chamber of Commerce, will be awarded to candidates from that district who are qualified to enter the Faculty of Commerce in the University, in October, 1902. Further information may be obtained from Prof. W. J. ASHLEY, Dean of the Faculty of Commerce.

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**FEES, EXHIBITIONS, SCHOLARSHIPS, &c.****EXAMINATION FEES.**

	£	s.	d.
(i.) Matriculation Examination ...	2	0	0
(ii.) Intermediate Examination ...	3	0	0
(iii.) First and Second Examinations in Commerce, each ... ..	3	0	0
(iv.) B.Sc. or B.A. ... ..	4	0	0
(v.) B. Com. ... ..	3	0	0
(vi.) M.Sc. or M.A. ... ..	5	0	0
(vii.) D.Sc., D.Phil. or D.Litt. ...	10	0	0
(viii.) First Engineering Examination ...	3	0	0
(ix.) Second Engineering Examination ...	3	0	0
(x.) Third Engineering Examination ...	3	0	0
(xi.) B.Sc. in Engineering ... ..	4	0	0
(xii.) Diploma in Education (General or Higher) ... ..	2	0	0
(xiii.) Diploma in Brewing ... ..	2	0	0

**UNIVERSITY EXHIBITIONS.**

Two exhibitions, not exceeding in value the sum of £30, tenable for one year, are awarded on the results of the Intermediate Examinations in Science and Arts. The exhibitions are tenable during the University Session immediately following the examinations, and will be paid solely in the form of remission of fees.

The exhibitions may be renewed for a second year by the Faculties of Science and Arts after receiving reports of satisfactory progress.

**UNIVERSITY SCHOLARSHIPS.**

About four University Scholarships of the value of £50 a year, tenable for one year after graduation, may be awarded on the nomination of the Faculties of Science and Arts. These scholarships will carry with them free admission to lectures and laboratories in preparation for the Master's Degree.

**Research Scholarships.**

In addition to the Priestley and Bowen Research Scholarships, about four Research Scholarships of the value of £50 a year, tenable for one year, may be awarded

on the nomination of the Faculties of Science and Arts. The scholarships will carry with them free admission to the Library and Laboratories of the University for the purposes of research. They will be held subject to the progress and good conduct of the holders, at the discretion of the Faculty concerned.

### **Bowen Scholarships in Engineering.**

*(Founded by the late T. Aubrey Bowen, of Melbourne.)*

Two Scholarships of the value of about £96 each, tenable for one year (except as hereafter mentioned), are awarded annually.

The objects of these scholarships are to encourage research in the scientific portions of engineering. The scholarships will be held under the condition that the holder devotes his whole time to research as a student in the University of Birmingham.

Candidates must have spent three years in the Engineering Department of a University College; preference will be given to candidates who hold an engineering degree.

In each year two scholarships will be offered tenable for one year, but in special cases where the scholar has shown considerable capacity for research work, the scholarship may be extended for a further year. The scholarships will be paid in three instalments, and in the event of a scholar's attendance, diligence, or progress being at any time unsatisfactory, the subsequent instalments may be withheld.

The University Fee payable by Bowen Scholars will be £30 for the year, payable in three sums of £10 each, this sum to include the use of the ordinary apparatus and materials, as well as the purchase of such special apparatus and materials as the Professor shall consider desirable.

*Applications, supported by details of educational training and references to former teachers and others, should be sent to the Registrar on or before the 1st of June.*

### **Priestley Scholarships in Chemistry,**

*(Founded by the late T. Aubrey Bowen, of Melbourne.)*

Three Scholarships of the value of about £96 each, tenable for one year (except as hereafter mentioned), are awarded annually.



The object of these scholarships is to encourage and afford greater facilities for the higher study of chemical science at the University. As far as possible this higher study will take the form of original experimental or theoretical investigation in some branch of Chemistry, pure or applied, to be carried on in the Laboratories of the University, under the direction of the Professor of Chemistry.

In the selection of candidates for these scholarships, preference will naturally be given to present or past students of the University, although outside candidates bearing the necessary credentials will also be eligible. As a general rule only such candidates as have passed through an approved three years' course of study in chemistry and the allied sciences will be accepted.

Under ordinary circumstances the scholarships will be tenable for one year, but the power is reserved of renominating for a second or third year in the event of such a course being considered desirable as tending to promote the object which the foundation of these scholarships has in view.

Priestley Scholars will be regarded as ordinary students of the University, and must conform to all the general rules of the University as well as to the special ordinances of the Chemical Department. The scholarships will be paid in three instalments, and in the event of a scholar's attendance, diligence, or progress being at any time unsatisfactory, the subsequent instalments may be withheld.

The University Fee payable by Priestley Scholars will be £30 for the year, payable in three sums of £10 each, this sum to include the use of the ordinary apparatus and chemicals, as well as the purchase of such special apparatus and chemicals as the Professor shall consider desirable.

At the close of his year's tenure of the scholarship, or at any time previous thereto that the Professor may think fit, a scholar shall present the results of his work in the form of a thesis, the arrangements for the publication of



which shall be left to the discretion of the University authorities.

*Applications, supported by details of educational training and references to former teachers and others, should be sent to the Registrar on or before the 1st of June.*

### Bowen Scholarship in Metallurgy

*(Founded by the late T. Aubrey Bowen, of Melbourne.)*

A Scholarship of the value of about £96, tenable for one year, is awarded annually.

This scholarship will be held on precisely similar terms to those laid down above for chemistry, the work engaged on by the scholar having a direct or theoretical bearing on some department of metallurgy. As the prosecution of this work may from time to time entail the visiting of works for the purpose either of personal observation or actual experiment, the Professor will be empowered to authorize the expense of such visits being either wholly or in part defrayed out of the above-mentioned fee paid by the scholar.

*Applications, supported by details of educational training and references to former teachers and others, should be sent to the Registrar on or before the 1st of June.*

### The Corbett Scholarship.

*(Founded by the late John Corbett, of Impney, Droitwich.)*

The Corbett Scholarship, of the value of about £28 a year, is tenable for one year, and is awarded to the student who is recommended to the Senate as the most promising and distinguished student in Mathematics at the end of his or her second year after registration.

### Heslop Memorial Scholarship.

At a Public Meeting held at the Council House, Birmingham, on Friday, the 3rd of July, 1885, the following resolutions were unanimously passed:—

“That it is desirable to commemorate in some permanent form the long and valuable services rendered to the town of Birmingham, and especially to its Charitable

and Educational Institutions, by the late Dr. HESLOP, and thus to place on record the public estimation of his character and labours."

"That for the purpose mentioned in the previous resolution a subscription list be now opened, and that such subscriptions to the amount of £1,000 be applied to the formation of a Scholarship at the Mason College, tenable by pupils from the Schools on the Foundation of King Edward VI."

The subscriptions obtained for the purpose of the foregoing resolutions, after deducting costs of advertising, &c., amounted to £755 19s. 0d., and the income arising therefrom (about £25 per annum) provides a Heslop Memorial Scholarship, which is awarded upon the following conditions:—

1. The Scholarship is open to all pupils who have been pupils in any of the Schools on King Edward's Foundation for not less than *two* years immediately preceding;
2. It is tenable for *two* years at the University;
3. It is awarded by the University on the result of a special examination;
4. It is not tenable together with any other Exhibition or Scholarship awarded at the same examination;
5. It is paid solely in the form of remission of class fees.

#### Scholarships for holders of Birmingham School Board Scholarships.

The University annually awards free Scholarships to the Students entering the University as holders of Scholarships given by the Birmingham School Board, by remitting all fees for instruction.

The Scholarships are tenable at the University for *three* years, and at King Edward's School or the Technical School for such preceding period as may be necessary to fit the scholars to enter the University. The scholars must obtain from the Principal a written approval of the

course of study they intend to pursue. The continuance of the Scholarships is at all times subject to satisfactory reports as to the fulfilment of the conditions under which they are held.

### Science Research Scholarship

Awarded by the Royal Commissioners for  
the Exhibition of 1851.

The Royal Commissioners for the Exhibition of 1851 annually place at the disposal of the University the nomination to a Science Scholarship of the value of £150 a year, tenable for two years, the continuation for the second year being dependent on the work done in the first year being satisfactory to the Scientific Committee appointed by the Commissioners. The student nominated must have studied in the University for three years at least, and must undertake to devote himself to scientific research or the application of scientific knowledge to industries. The scholarship may be held at any University at home or abroad, or in some other properly equipped institution to be approved of by the Commissioners. The nomination of candidates by the University is subject to revision by the Commissioners, and the privilege of nomination may be withheld by them at any time.

*Applications should be made to the Registrar on or before the 25th of March.*

### Harding Scholarships in German.

*(Given by Mr. and Mrs. Charles Harding.)*

Four Scholarships of the annual value of £50, each tenable during three years by students of German in the School of Modern Languages, may be awarded by the Faculty of Arts on the nomination of the Professor of German, two in the year of 1902 and two in 1903.

At the close of the third year further Travelling Scholarships of £100 each for one year may be awarded to these scholars, provided that they have taken the B.A. degree in the School of Modern Languages and that their

work and conduct for the previous three years have been satisfactory. The Travelling Scholarship will be tenable at a German University to be approved by the Faculty of Arts.

These Scholarships are offered with the intention of inducing students of marked aptitude for linguistic and literary studies to devote themselves to a special course of study with a view to becoming teachers of modern languages in secondary schools in England. They will be continued only so long as the progress and conduct of the holders are satisfactory to the Faculty.

### **POLYTECHNIC BURSARIES.**

Two Bursaries, of the approximate annual value of £45 each for three years, will be awarded on the result of the Matriculation Examination in June, 1903, to candidates who have for a period of five years resided in the city of Birmingham or any of the following parishes, viz., Yardley, Castle Bromwich, Erdington, Aston Manor, Handsworth, Smethwick, Halesowen, Northfield, King's Norton, and the incomes of whose parents (if alive) do not together exceed the sum of £150 per annum, or who if their parents or either of them be deceased are in receipt of an income of not more than 15s. a week. Candidates are required to satisfy the Standing Committee appointed by the Founders that they belong to the class of persons for whom the Scholarships were intended, and with a view thereto are requested to send their names and addresses to the Registrar of the University before May 1st, 1903.

### **PRIZES.**

#### **The Karl Dammann Memorial Prize.**

The "KARL DAMMANN MEMORIAL PRIZE," of the value of about £5, founded by a friend of the late Dr. Karl Dammann, the first Professor of German Language and Literature in Mason College, is awarded annually to the best student in an examination in German Literature. The prize is given in the form of works in the German language.

The candidates must write an Essay in German upon a Literary Subject, to be announced by the Professor at an early date in each Session, and must pass an examination which will comprise a paper on the special period of German Literature taken by the Professor in the preceding Session, and a *vivâ-voce* examination, in which the candidates will have to translate at sight from some of the authors and answer questions relating to them.

### The Panton Geological Prize.

The "PANTON PRIZE," of the value of Two Guineas—presented by Geo. A. Panton, Esq., F.R.S.E.—in 1881 in honour of his friend Prof. Charles Lapworth, F.R.S.—is awarded to the best student in the class of Local Geology; the prize being given upon the result of a competitive examination upon the Geology of the neighbourhood of Birmingham, or as a reward for a special thesis upon the Geology of the Birmingham District.

### Bunce Prize.

The "BUNCE PRIZE," of the value of about £3, founded by the late J. Thackray Bunce, is awarded annually on the result of a special examination held in the month of June.

Subjects of Examination for June, 1903 :—

- (a) The Works of Shakspeare.
- (b) Shaksperian Criticism.

Candidates should send in their names to the Registrar on or before June 1st.

### Gladstone Memorial Prize.

The Committee of the Gladstone Memorial Fund offers annually to students of the University a prize of Books, of the value of £5, for an Essay on a subject connected with History, Political Science, or Economics.

Candidates are recommended to consult the Professors of English and Philosophy as to the proposed subject for the essay.

The exercises should be sent in to the Registrar on or before June 1st.



**GOLD MEDALS.****The Heslop Memorial Medal.**

The "HESLOP GOLD MEDAL," provided out of the proceeds of a bequest to the College by the late Thomas Pretious Heslop, M.D., is awarded annually by the University, on the recommendation of the Senate, for the best Dissertation or Essay upon a subject to be selected by the candidate. The Medal is open to all past and present students of not less than two years' standing.

The subjects are arranged in the following divisions:—

- a.* Language, Literature, and Philosophy.
- b.* Mathematical and Physical Science, including Metallurgy and Engineering.
- c.* Biological and Geological Science, including Mining.

The award will be in division *b* for 1903, *c* for 1904, and *a* for 1905.

Candidates are at liberty to select any subject under the above headings, and are advised to consult their Professors in making their choice.

The essays must be sent in to the Registrar under a motto, not later than the 30th of April, accompanied by a sealed envelope, with the motto outside, containing the name of the candidate. The exercise should not be in the handwriting of the candidate.

If in any year the Medal be not awarded it may be offered again in the following year in the same group of subjects, in addition to the Medal naturally offered for that year in another group, and so on until the completion of the cycle of subjects.

**The Constance Naden Medal.**

The "CONSTANCE NADEN GOLD MEDAL," founded by Surgeon Lieut.-Colonel R. Lewins, M.D., in memory of the late Miss Constance Caroline Woodhill Naden, is



awarded annually by the University, on the recommendation of the Senate, for the best exercise under one of the following headings :—

- a. An English Poem.
- b. A dissertation on a literary subject.
- c. A dissertation on any subject relating to mental and moral science.
- d. An examination of any of the fundamental principles or axioms of science, with their bearings upon modern thought.

The competition for the medal is open to all present or past students of the University, who have attended systematic courses during two sessions.

The exercises must be sent in to the Registrar, under a motto, not later than the 30th of April, accompanied by a sealed envelope, bearing the motto, and containing the name of the candidate. The exercise should not be in the handwriting of the candidate.

### **SCHOLARSHIPS IN THE MEDICAL FACULTY.**

(See Page 353).

### **GOVERNMENT AID TOWARDS THE INSTRUCTION OF SCIENCE TEACHERS.**

In accordance with a minute adopted by the Right Honourable the Lords of the Committee of Her Majesty's Most Honourable Privy Council on Education, June, 1881 (Science Form, No. 1,126), their Lordships are prepared to pay three-fourths of the fees for courses of laboratory instruction, as stated below, for a limited number of Teachers engaged in Science Teaching, on condition that satisfactory reports of their progress (to be ascertained by examination), and of their conduct, be received at the end of the Winter, Spring, and Summer Terms.

Applications for this privilege must be made to the Secretary, Board of Education, South Kensington, London, S.W., not later than the 31st August.

The selection of the applicants will rest with the Board of Education.

The fees for two days a week for the Session, from October to June, are :—

*For the Chemical or Metallurgical	£	s.	d.
Laboratories                   ...     ...	9	9	0
*For the Physical Laboratory ...     ...	7	7	0
*For the Biological Laboratories..     ...	7	7	0

NOTE.—One-fourth of the fee for the whole Session must be paid by the student on entrance, under the usual conditions of the University. The remaining three-fourths of the fee will be paid by the Board of Education, in equal instalments, at the commencement of each term subject, however, to the right of the Board to withhold payment of the second and third instalments should the reports not be satisfactory.

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\* Including such of the Lectures as the Teachers are able and willing to attend.

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## Vacation Reading.

### MATHEMATICS.

C. L. Dodgson, Euclid and his Modern Rivals.  
Pillow Problems.

H. H. Turner, Modern Astronomy.

W. W. R. Ball, Mathematical Recreations and  
Problems.

A Short History of Mathematics.

### PHYSICS.

Students about to enter Course I. may read :—

Tyndall's Sound.

S. P. Thompson's Light, Visible and Invisible.

Those about to enter Course II, Part I may read :—

Perry's Spinning Tops.

Ball's Time and Tide.

Newcomb's Astronomy.

Those about to enter Course II, Part II may read :—

Boys' Soap Bubbles.

Rotch's Sounding the Ocean of Air.

Roscoe's Spectrum Analysis.

Clarke's System of the Stars.

Thomson's Electric Discharge in Gases.

Or students may prefer to read some part of the Text  
Books to be used in the different courses.

#### *Text Books for Course I.*

Larden's School Course in Heat, or Wright's Heat.

Glazebrook's Light.

Catchpool's Text Book of Sound.

Poyser's Advanced Magnetism and Electricity.

#### *Text Books for Course II, Part I.*

Worthington's Dynamics of Rotation.

Stewart and Gee's Practical Physics, Vol. I, Part I.

Edser's Heat, and Maxwell's Theory of Heat.

Joubert, Foster and Atkinson's Electricity and  
Magnetism.

*Text Book for Course II, Part II.*

Mayer's Kinetic Theory of Gases.

Poynting and Thomson's Sound.

Preston's Light.

### CHEMISTRY.

A. Students intending to enter for the First Year's Course may profitably read :—

(1) Newth's Inorganic Chemistry.

(2) Dobbin and Walker's Chemical Theory for Beginners.

B. Students intending to enter for the Second Year's Course may profitably read :—

(1) Ostwald's Foundations of Analytical Chemistry.

(2) Walker's Introduction to Physical Chemistry.

(3) Wade's Organic Chemistry, especially the introductory chapters and those relating to the fatty compounds.

C. Students intending to enter for the Third Year's Course may profitably read :—

(1) Wade's Organic Chemistry (revision).

(2) Walker's Introduction to Physical Chemistry (revision).

(3) Van t'Hoff's Lectures on Theoretical and Physical Chemistry.

(4) Lachman's Spirit of Organic Chemistry.

(5) Ernst v. Meyer's History of Chemistry.

### ZOOLOGY.

First Year Vacation.

The Study of Animal Life, by J. Arthur Thompson (John Murray).

The Colours of Animals, by E. B. Poulton (International Science Series).

Darwinism, by A. R. Wallace (Macmillan & Co.).

Lectures on the Darwinian Theory, by A. Milnes Marshall (David Nutt).

Outlines of Zoology, by J. Arthur Thompson (Young J. Pentland).

Text-book of Zoology, by T. J. Parker and W. A. Haswell (Macmillan & Co.).

## Second Year Vacation.

The Origin of Species, by Charles Darwin (John Murray).

Descent of Man, by Charles Darwin (John Murray).

Island Life, by A. R. Wallace (Macmillan & Co.).

The Malay Archipelago, by A. R. Wallace (Macmillan & Co.).

Notes by a Naturalist on H.M.S. Challenger, by H. N. Moseley (John Murray).

Animal Life, by Karl Semper (International Science Series).

The various volumes of The Cambridge Natural History (Macmillan & Co.).

Amphioxus and the Ancestry of Vertebrates, by Arthur Willey (Macmillan & Co.).

The Cell in Development and Inheritance, by E. B. Wilson (Macmillan & Co.).

Treatise on Zoology, by E. Ray Lankester, parts ii. and iii. (A. & C. Black).

An Introduction to the Study of Mammals, living and extinct, by W. H. Flower and R. Lydekker (A. & C. Black).

Vertebrate Embryology, by A. Milnes Marshall (Smith, Elder & Co.).

Vertebrate Palæontology, by A. Smith Woodward (Cambridge University Press).

Geographical Distribution of Animals, two vols., by A. R. Wallace (Macmillan & Co.).

The Professor will be glad to advise students in their choice of books.

## BOTANY.

(1) *After Matriculation and before entering University.*

FIELD BOTANY, with the aid of Groom's Elementary Botany (Bell & Sons), or Henslow's How to Study Wild Flowers (Religious Tract Society).

Lubbock's "Flowers, Fruits and Leaves" (Macmillan's "Nature" Series).

(2) *At end of First University Year.*

FIELD BOTANY, using Hooker's "Students' Flora of the British Isles" (Macmillans). As a convenient book for the pocket, Hayward's "Botanists' Pocket Book" (Bell & Sons).

Lubbock's "British Wild Flowers in relation to Insects" (Macmillan's "Nature" Series). Coulter's "Plant Relations" (Appleton, New York). "Darwinism," by A. R. Wallace (Macmillan). "The Naturalist in Nicaragua," by Thos. Belt (Bumpus).

(3) *At end of Second University Year*, special suggestions will be made.

The Professor's holiday advice to students in general is—live so far as can be in the open air, and study Nature face to face, finding out her methods first hand.

## GEOLOGY.

*Preliminary Reading.*

Students desirous of preparing themselves for entering the Junior Classes in the Geological Department should read any of the ordinary text-books upon Physiography and Physical Geography, such as Page and Lapworth's *Elementary Physical Geography* (Blackwood), Philip's *Class Book of Physical Geography*, or Hinman's *Eclectic Physical Geography*.

If these have been mastered, the pupil is recommended to continue his reading in the subject in such works as Geikie's *Scenery and Geology of Scotland*, or Davis' *Physical Geography* (Ginn).

The deeper the student's acquaintance with the facts and principles of Physical Geography, the more rapid and certain will be his future progress in the science of Geology.

*Long Vacation Reading.*

The nature of the Long Vacation Reading will depend to a certain extent upon the special



branch of the subject which the student is taking up for his degree. All students, however, should read Lapworth's *Intermediate Geology* (Blackwood), Nicholson's *Ancient Life-History of the Earth*, Green's *Physical Geology*, or the Dynamic portion of Geikie's *Text Book of Geology*, Jukes-Browne's *Building of the British Isles*, or Marr's *Scientific Study of Scenery*.

Those who are desirous of reading outside their ordinary work may study Lyell's *Principles of Geology*, Kayser and Lake's *Comparative Geology*, or James Geikie's *Great Ice Age*.

The Text Books studied during the term are not included in the above.

#### FACULTY OF ARTS.

The following books are suggested to students about to commence their first, second, or third year's course for the B.A. Degree :—

##### First Year's Course.

###### LATIN.

The *Aeneid* of Vergil in the verse translation of Rhoades (Longman).

Wells, *History of Rome* (Methuen).

Fausset, *The Student's Cicero* (Swan Sonnenschein and Co.).

###### GREEK.

The *Odyssey* of Homer, translated in prose by Butcher and Lang (Macmillan).

Plato, *Apology*, translated by Jowett (Clarendon Press), or by Cary (Routledge).

###### ENGLISH. One or more of the following works :—

Dowden's *Shakspeare : His Mind and Art*.

Bagehot's *English Constitution*.

Russell Lowell's *Essays on Chaucer and Spenser*.  
(*My Study Windows*, Camelot Series.)

Mandeville's *Travels*.  
 Malory's *Mort D'Arthur* (Selections).  
 Kingsley's *Westward Ho !*

## FRENCH.

French Life in Town and Country (Newnes and Co.)  
 Vie de Collège en France, par Laurie (Hetzel, Paris).  
 Dialogues des Morts, par Fénelon (Delagrave, Paris).

## GERMAN.

W. H. Dawson, German Life in Town and Country  
 (George Newnes & Co.).  
 H. Seidel, Weihnachten bei Leberecht Hühnchen,  
 edited by Morich (Rivington).

## Second Year's Course.

## LATIN.

Select Odes of Horace, translated in verse by De Vere  
 (W. Scott's Canterbury Poets).  
 Catullus, translated in verse by Martin (Blackwood).  
 Mackail, *Latin Literature* (Murray).

## GREEK.

Aeschylus, *Agamemnon*, translated by Robert  
 Browning (Smith, Elder & Co.).  
 Balaustion's Adventure, by Robert Browning (Smith,  
 Elder & Co.).  
*The Student's Manual of Greek Tragedy*, edited by  
 Verrall (Swan Sonnenschein & Co.).  
 The Greek view of life, by G. L. Dickinson  
 (Methuen).

## ENGLISH. One or more of the following works :—

Bacon's *Advancement of Learning*.  
 Russell Lowell's *Essays on Dryden and Pope*.  
 Pepys' *Diary* (Selections).  
 Hakluyt's *Voyages* (Selections).  
 Addison's *Sir Roger de Coverley Papers*.  
 Arbuthnot's *John Bull*.  
 Defoe's *Journal of the Plague*.  
 Thackeray's *Esmond*.

## FRENCH.

- Pages choisies de Balzac (G. Lawson), (Colin & Cie, Paris).  
 Pellissier, Le mouvement littéraire au XIX<sup>e</sup> siècle (Hachette, Paris).  
 Taine, Voyage aux Pyrénées (Hachette, Paris).  
 Robiquet, Histoire municipale de Paris. Scènes et récits historiques (Hachette, Paris).  
 Mézières, La Société française (Perrin, Paris).  
 Texte, Etudes de littérature européenne (Colin, Paris).

## GERMAN.

- K. Francke, Social Forces in German Literature (Bell & Sons).  
 S. Whitman, Imperial Germany (Trübner and Co.)  
 Behaghel-Trechmann, A Short Historical Grammar of the German Language (Macmillan and Co.)  
 Goethe's Götz von Berlichingen, translated by Sir Walter Scott (Bohn's Library).  
 Schiller's Wallenstein, translated by Coleridge (Bohn's Library).  
 Balladen und Romanzen, The Golden Treasury of the Best German Ballads and Romances (Macmillan & Co.).  
 Scheffel's Ekkehard, edited by H. Hager (Whittaker and Co.).

## Third Year's Course.

## LATIN.

- Horace's Satires and Epistles, translated in verse by Conington (Bell).  
 Sellar's Roman Poets of the Augustan Age: Vergil, Horace, and the Elegiac Poets (Clarendon Press).  
 Myers, *Essay on Vergil* ("Classical Essays," Macmillan).

## GREEK.

- Plato, *Crito* and *Phædo*, translated by Jowett (Clarendon Press), or by Cary (Routledge).  
 Theocritus, translated by Hallard (Longman).

ENGLISH. One or more of the following works :—

Walpole's *Letters*, and *Castle of Otranto*.

Myers' *Wordsworth* (Englishmen of Letters Series).

Richardson's *Pamela*.

Thackeray's *English Humourists* and *The Four Georges*.

Scott's *Heart of Midlothian*.

Carlyle's *Sartor Resartus*.

FRENCH.

*Stapfer*, Molière et Shakspeare (Hachette, Paris).

*Jusserand*, Les Anglais au Moyen-Age (Hachette, Paris).

*Lemaistre*, L'Institut de France et nos grands établissements scientifiques (Hachette, Paris).

*Brunetière*, L'évolution des genres dans la littérature (Hachette, Paris).

*Pellissier*, Etudes de littérature contemporaine (Perrin, Paris).

GERMAN.

W. Scherer, *Geschichte der deutschen Litteratur* (Berlin, Weidmann).

[The same translated by Mrs. Conybeare, Oxford University Press.]

F. Paulsen, *die deutschen Universitäten* (Berlin).

[The same translated by E. D. Perry, New York. Macmillan and Co.]

O. Weise, *Unsere Muttersprache* (Leipzig, Teubner).

G. H. Lewes, *The Life and Works of Goethe*.

Thomas Carlyle, *The Life of Friedrich Schiller*.

J. R. Seeley, *Goethe Reviewed after sixty years* (London, Seeley and Co.).

*Deutsche Lyrik*. The Golden Treasury of the Best German Lyrical Poems (Macmillan and Co.).

*Goethe's Faust* in the original, and Sir Theodore Martin's Translation.

Gottfried Keller, *Die Leute von Seldwyla*, Erzählungen (Berlin, W. Hertz).

## FACULTY OF MEDICINE.

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THE SESSION will be opened on Wednesday, the 1st of October, 1902.

There are two Sessions in the academical year, and students may commence their studies at the beginning of either, but are recommended to enter in October.

THE WINTER SESSION begins on the 1st of October and terminates on the 28th of March.

THE SUMMER SESSION commences on the 21st of April and terminates on the 27th of June.

The Dean's Office is open daily, and all information may be obtained there. The Dean attends during Term on Monday, Wednesday, and Friday, from 2.30 to 3. During vacations information may be obtained by letter.

All Fees are payable in advance (*i.e.* at the beginning of the Session on account of which they are due), at the Secretary's Office in the University. Cheques should be drawn in favour of Mr. Geo. H. Morley.

All the Courses and Degrees in the University are open to students of both sexes.

Students, on entrance, are required to produce a testimonial or such other evidence of good character as shall be satisfactory to the Dean, and to sign an engagement that they will conform to such regulations as have been or may be made for the maintenance of order in the University.

Students intending to take lodgings in Birmingham or the vicinity are requested to place themselves in communication with the Secretary.

## REGULATIONS FOR DEGREES IN MEDICINE AND SURGERY.

The University confers the degrees of Bachelor and Doctor of Medicine (M.B. and M.D.) and of Bachelor and Master of Surgery (Ch.B. and Ch.M.). The course for the Bachelors' degrees extends over five years from the date of registration with the General Medical Council. The first four of these years must be spent in the University. The fifth year may be spent at any other school or schools of medicine recognised by the University.

### M.B. and Ch.B. Degrees.

(i) Candidates for the above degrees must be matriculated in the University.

For regulations for Matriculation see p. 129.

(ii) Candidates must pursue the prescribed curriculum of study, and pass the prescribed examinations, subject to the following regulations :—

- (a) The Winter Session includes the Winter and Spring Terms, and the Summer Session corresponds with the Summer Term as set down in this Calendar.
- (b) At the end of each course of lectures or practical instruction, the student must obtain the signature of his teacher in the schedule book, which he will be required to lodge with the Registrar when entering his name for an examination.
- (c) This certificate must contain a statement that the student has attended to the satisfaction of the Professor, Lecturer, or Hospital Teacher not less than two-thirds of the lectures, practical classes, or clinical instruction, of which the course consists, together with such class-examinations or other exercises as each teacher may prescribe in connection with his own course. In cases of illness duly certified, the Dean has a discretionary power to relax the rule as to the attendance at two-thirds of the lectures.



- (d) No student will be signed up for any course as having satisfactorily attended the same unless he shall have been awarded at least forty per cent. of the marks obtainable for the term's work, whether these marks are awarded for practical work or for term examinations or for both.
- (e) The marks awarded for the term's work in any subject will be added to the marks awarded at the University examination in the same subject, and, though these marks will not enable a man who has done badly at that examination to pass, they may cause his failure, since a certain aggregate percentage will be required, or may have an important effect upon his position in the class-list.
- (f) These regulations will apply to Hospital Classes also in the case of Undergraduates commencing their work there next year.
- (g) The classes in the University must be taken out in the order and during the years specified in the Time Table, unless the student shall have received written permission from the Dean to vary the order of his study. In no case will students be permitted to enter upon Hospital study, other than that set down for the second year, until the Second Examination shall have been passed.
- (h) In each examination, except the second, the student will be required to pass in *all* the subjects set down for that examination; failure in any one subject will entail the loss of the examination.
- (i) In the case of failure in a subject in which practical work forms part of the examination, the student will not be re-admitted to examination until he has produced a certificate, that, subsequent to such failure, he has attended a further course of study to the satisfaction of his teacher or teachers in such subject or subjects as he may have failed in.

- (j) In the case of failure in the final examination, the student will be required, before being re-admitted to examination, to produce a certificate as evidence of six months further attendance on clinical work at some recognized hospital or hospitals.

NOTE.—Examinations in the Faculty of Medicine will be held twice in the year, April and June respectively, on dates which are advertised in the Calendar, and every candidate will be required to produce a certificate of having been registered as a medical student by the General Medical Council before admission to the first medical examination.

### Course of Instruction and Examinations for Degrees in Medicine and Surgery.

#### FIRST YEAR.

*Anatomy.*—One course of lectures during the Winter Session, with practical work extending over the same period.

*Chemistry.*—One course of lectures and practical work during the Winter Session, with a second course, accompanied by practical work during the Summer Session.

NOTE.—Students are strongly recommended to study Elementary Chemistry before entering on this course.

*Physics.*—One course of lectures accompanied by practical work, extending over the Winter and Summer Sessions.

*Physiology.*—One course of practical work during the Summer Session. Before commencing this course students will be required to provide themselves with a microscope subject to the regulations on page 320.

At the end of the First Summer Session students will be eligible for the First Examination, viz., Chemistry and Physics.

NOTE.—Students who have passed the Intermediate Examination for Degrees in Science in these subjects will be exempt from further examination in them.

## SECOND YEAR.

*Anatomy.*—One course of lectures during the Winter Session, and one during the Summer Session, with practical work extending over the same period.

NOTE.—The certificate in Anatomy must show that the student has dissected the entire body *at least* once.

*Physiology.*—One course of lectures accompanied by practical work during the Winter Session, and a course of lectures during the Summer Session.

*Zoology and Comparative Anatomy.*—A course of lectures during the Winter Session, with practical work extending over the same period.

*Hospital.*—Attendance on special Tutorial Classes will be required on Saturday mornings during the Winter and Summer Sessions.

At the end of the second Summer the student who has duly followed the above courses will be eligible for the Second Examination, viz., Anatomy, Comparative Anatomy and Physiology. Students may present themselves for *all* or any *two* of these subjects. In either case a candidate must pass in two subjects in order to secure credit for any part of the Examination.

## THIRD YEAR.

*Medicine.*—One course of lectures during the Winter Session.

*Surgery.*—One course of lectures during the Winter Session.

*Hygiene and Public Health.*—One course of lectures during the Winter Session.

*Pathology.*—One course of lectures during the Winter Session, with a course of practical work during the Summer Session. Before attending the practical part of this course the student will be required to add to his microscope the additional parts mentioned in the Regulations on page 320.

*Materia Medica*.—One course of lectures during the Summer Session, with a practical course of instruction in Pharmacy during the same Session.

*Hospital*.—The course of instruction as set down in the Regulations for Hospital work must be followed.

At the end of this year the student who has been duly certified for *Materia Medica* and Practical Pharmacy may present himself for the Third Examination in those subjects at the end of the Summer Session.

#### FOURTH YEAR.

*Medicine*.—One course of lectures during the Winter Session.

*Surgery*.—One course of lectures during the Winter Session.

*Therapeutics and Pharmacology*.—One course of lectures during the Winter Session.

*Midwifery*.—One course of lectures during the Winter Session.

*Forensic Medicine and Toxicology*.—One course of lectures accompanied by practical work during the Summer Session.

*Gynaecology*.—One course of lectures during the Summer Session.

*Mental Diseases*.—One course of lectures during the Summer Session.

*Hospital*.—The course of instruction as set down in the Regulations for Hospital work must be followed.

At the end of this year the student who has duly followed the courses prescribed for the third and fourth years will be eligible to present himself for the Fourth Examination, viz., Pharmacology, Pathology, Forensic Medicine, Toxicology and Public Health.

#### FIFTH YEAR.

*Surgical and Medical Anatomy*.—One course of demonstrations extending over three months during the Winter Session.

*Operative Surgery.*—One course of practical instruction during the Winter Session.

*Ophthalmology.*—One course of lectures during the Summer Session.

*Hospital (General Clinical).*—The course of instruction as set down in the regulations for Hospital work must be followed.

*Fever Hospital.*—One course of instruction extending over not less than three months.

NOTE.—The certificate must include a statement that the student has personally taken notes of not less than six cases of fever. The notes of these cases must be presented to the examiners at the time of the examination.

*Asylum Practice.*—One course of instruction extending over not less than three months.

NOTE.—The student will be expected to present to the examiners at the time of examination at least four properly filled up certificates of lunacy drawn up by himself after personal examination of insane patients, and notes of two cases taken by himself, both to be certified by his teacher.

*Vaccination.*—The student must follow the course laid down by the instructions of the Local Government Board.

In addition to evidence that the above courses have been duly completed, the student will, on presenting himself for the final examination, be required to produce the following additional certificates :—

- (a) Of having attained his twenty-first year.
- (b) Of having during his third and fourth years performed the duties of clerk and dresser according to the rules laid down in the regulations for Hospital work.
- (c) Of having attended during at least twelve months the demonstrations given in the *post-mortem* room of a recognised Hospital, and of having acted for three months as *post-mortem* clerk.



- (d) Of having attended during three months the practice of an Obstetric Department or Hospital recognised by the University or of having attended not less than twenty cases of labour, the first five at least of which shall have been conducted under the personal supervision of a registered practitioner, and of having continued such attendance throughout the puerperal period.
- (e) Of having, during at least three months, received in either a general or special Hospital, recognised by the University, Clinical instruction in the Diseases peculiar to Women.

NOTE.—The student will be expected to present to the examiners, at the time of his examination, notes of at least six cases of this character taken by himself and certified as such by the teacher from whom he received his instruction.

- (f) Of having, during at least three months, received in either a general or special Hospital, recognised by the University, Clinical instruction in Ophthalmology.

NOTE.—the Certificate must state that the student has received personal instruction in the detection and correction of errors of refraction.

- (g) Of having received practical instruction in the administration of anæsthetics.

On presenting the above certificates, the student will be eligible to enter for the Final Examination in Medicine, Surgery, Midwifery, Gynæcology, Ophthalmology, and Mental Diseases.

On passing this examination the student will be permitted to proceed to the Degrees of Bachelor of Medicine and Bachelor of Surgery.

At the end of one year from the date of having passed this examination the candidate will be eligible to present himself for the higher Degrees of either Doctor of Medicine or Master of Surgery or both.



### M.D. and Ch.M. Degrees.

Candidates for either of these Degrees will be required to comply with one or other of the following Regulations :—

(i.) A Candidate may present a Thesis, embodying original observations in some subject embraced in the medical curriculum and approved by a Board of medical examiners to whom the Thesis will subsequently be submitted—on the Report of which Board the Degree will be awarded or withheld. The candidate may be examined on the subject which he has chosen for his Thesis and the examiners may require to see the notes of original observations on which the Thesis is based.

(ii.) A Candidate may pass a general examination (written and practical), in Medicine or Surgery, according to the Degree desired, and, in addition, show special proficiency in any one of the following subjects to be chosen by the candidate :—

For the Degree of M.D. :—

- (a) Infectious Diseases.
- (b) Diseases of the Chest.
- (c) Diseases of the Abdomen.
- (d) Nervous Diseases.
- (e) Diseases of Children.
- (f) Midwifery.
- (g) Pathology.
- (h) Bacteriology.
- (i) Medical Jurisprudence and Toxicology.
- (j) Public Health.
- (k) Mental Diseases.
- (l) Diseases of the Skin.

For the Degree of Ch.M. :—

- (a) Regional Surgery.
- (b) Gynæcology.
- (c) Ophthalmology.
- (d) Diseases of the Ear, Nose and Throat.

**The Fee for either of these Examinations is Ten Pounds.**

## REGULATIONS RESPECTING MICROSCOPES.

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It is essential that every well-educated medical man should possess his own microscope. Students will, therefore, be required to provide themselves with a satisfactory instrument before attending the course of Practical Physiology. Before attending the Practical Course in Pathology, they will be required to add a higher power lens and such other accessories as are necessary for the study of Bacteriology. Students can provide themselves with instruments, but in that case each instrument will have to be submitted to the Professor of Physiology, and its further accessories to the Professor of Pathology, and no student will be permitted to use in class an instrument which has not been approved by the Professor. The instrument recommended by the Faculty is the Delepine pattern microscope, manufactured by Messrs. Swift and Son, of London. Students desiring to do so can procure this instrument through the University by paying the sums set down below, in the Dean's office, when paying their other fees. All students, not already possessing a suitable instrument are advised to follow this course since they will obtain a substantial reduction in price by so doing. Moreover all instruments purchased in this way will have been carefully examined by the Professors of Physiology and Pathology, so that the purchaser will be certain that he is obtaining a first-class microscope. The price of the microscope with the parts necessary for the Course of Practical Physiology will be £8 11s. 0d., and this sum must be paid at the commencement of the first summer. The accessories necessary for the Course of Practical Pathology will cost in addition £5 6s. 6d., and this sum will have to be paid at the commencement of the third summer.

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## REGULATIONS FOR HOSPITAL WORK.

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### FIRST YEAR AT HOSPITAL.

Students must attend Hospital for two hours on Saturday mornings, when a Surgical Tutorial Class will be held, and instruction given in Clinical Surgery.

### SECOND YEAR AT HOSPITAL.

Out-Patient dressing, three months.

In-Patient dressing, six months.

Clinical Lectures on Surgery.

Medical and Surgical Ward Classes.

Medical Tutorial Classes (three months attendance will be required upon these before In-Patient dressing is commenced).

### THIRD YEAR AT HOSPITAL.

In-Patient clerking, six months.

Clinical Lectures on Medicine.

Medical and Surgical Ward Classes.

Post-mortem clerking, three months. Attendance at post-mortem examinations and demonstrations during the year.

### FOURTH YEAR AT HOSPITAL.

Clinical instruction in Medicine and Surgery.

Clinical Midwifery (twenty cases).

Gynæcological clerking, three months.

Ophthalmology, three months.

Vaccination, six weeks.

Course in Anæsthetics. Attendance on three Lectures, and the administration of Anæsthetics on ten cases.

Fever Hospital, three months.

Hospital for Mental Diseases, three months.

The following Institutions are recognized by the University for Special and Clinical Instruction.

FOR GENERAL CLINICAL PURPOSES.

The General Hospital.

The Queen's Hospital.

FOR FEVERS.

The Birmingham City Hospital.

FOR LUNACY.

The Birmingham City Asylum.

FOR OBSTETRICS.

The Obstetric Department of the Queen's Hospital.

The Rotunda Hospital, Dublin.

The Coombe Hospital, Dublin.

FOR OPHTHALMOLOGY.

The Eye Department of the Queen's Hospital.

The Birmingham and Midland Eye Hospital.

ASSOCIATED HOSPITALS.

The Royal Orthopædic and Spinal Hospital.

The Birmingham and Midland Ear and Throat Hospital.

FOR DENTAL HOSPITAL PRACTICE.

The Birmingham Dental Hospital.

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# FACULTY OF MEDICINE.

## Syllabuses of Courses.

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### ANATOMY.

*Professor:* BERTRAM C. A. WINDLE, M.Sc.; M.A., M.D.,  
D.Sc. (Dub.), F.R.S., F.S.A.

*Lecturer:* WILLIAM WRIGHT, M.B., Ch.B. (Vict.),  
F.R.C.S.

*Demonstrators:* W. E. BENNETT, M.B., Ch.B., F.R.C.S.,  
J. JAMESON EVANS, M.B., C.M. (Edin.), F.R.C.S.,  
VIOLET COGHILL, M.B., Ch.B. (Edin.)

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#### I.—Descriptive Anatomy.

The *First Year's Course* deals with Osteology, Arthrology and the Anatomy of the Upper and Lower Extremities. The lectures are delivered during the Winter Session at 10.30 o'clock, on Mondays, by Professor Windle, and on Wednesdays, by Mr Wright.

The *Second Year's Course* is partly given during the Winter, partly during the Summer Session. During the *Winter* lectures are delivered on the Osteology of the Cranium, and on the Thorax, Abdomen, and Head and Neck, excluding the Brain and Organs of Special Sense, at 12 o'clock, on Mondays, Tuesdays, Wednesdays and Thursdays. The lectures on Monday, Tuesday and Wednesday, are delivered by Professor Windle, and the lecture on Thursday, by Mr. Wright. During the *Summer* lectures are delivered on the Central Nervous System and the Organs of Special Sense on Mondays, Wednesdays and Fridays at 12 o'clock.

All these courses are accompanied by Demonstrations and Classes specially arranged to follow up the instruction given in the Lecture Theatre.

The course of Lectures on *Human Embryology* is given during the second Winter Session, on Thursdays at 3 p.m.

## II.—Practical Anatomy.

The Dissecting Room is open during term time from 9 a.m. to 5 p.m., except on Saturdays, when it is closed at 1 p.m. One or more of the Staff of the Department is always in charge of the room and ready to help students finding themselves in any difficulty with their parts. Information as to the detailed working of the Department will be found in the Guide which is presented to every student on entering for a course of Anatomy.

A list of the days and hours at which Demonstrations and Classes are to be held will be found on the Notice Board at the beginning of each term.

## III.—Medical and Surgical Anatomy.

*Lecturer:* WILLIAM F. HASLAM, F.R.C.S.

A Course of Lectures and Demonstrations for students in their fifth year will be given by the Lecturer on Applied Anatomy on Mondays, Wednesdays and Fridays, from October to December inclusive, at 3.30 p.m.

The Museum, which is open to all students, contains a large collection of frozen sections and dissections mounted in spirit, also of specially prepared and marked bones. There are a number of embryological models.

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## PHYSIOLOGY.

*Professor:* E. W. WACE CARLIER, M.Sc.; M.D., B.Sc.  
(Edin.), F.R.S.E.

*Demonstrator:* J. H. RHODES, M.B., Ch.B. (Edin.),  
M.R.C.S.

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### I.—Systematic Physiology.

A Course of Lectures in Physiology will be delivered at 10.30 a.m. each day, except Monday and Saturday, throughout the Winter Session, and at 3 p.m. on Tuesdays and Thursdays throughout the Summer Session. It will consist of at least 100 lectures.

The Course will comprise :—

#### WINTER.

- (1) General Chemistry of the Animal Body.
- (2) Structure, Chemistry and Physiology of the Cell and of the Simple Tissues.
- (3) Muscle and Nerve.
- (4) General Nutrition, including circulation of the blood and lymph, respiration (voice and speech), alimentation, nutrition of the tissues, internal secretions, excretion and the minute structure of the organs concerned.
- (5) Animal Heat, its production and regulation.
- (6) Dietetics.
- (7) Reproductive System.
- (8) The Senses and Sense Organs.

#### SUMMER.

- (9) The Sense Organs continued.
- (10) The Central Nervous System, its structure and functions.

### II.—Practical Physiology.

The Course will extend over one Summer and one Winter Session.

**HISTOLOGY.**—This Class will meet in the Physiological Laboratory every day, except Saturday, throughout the Summer Session from 11.0 to 12.30. Each student will have the use of a microtome and will be supplied with all re-agents, but he will be expected to furnish himself with a microscope, slides, cover-glasses, a razor and other sundries.

Each student will prepare and study microscopical specimens of most of the tissues and organs of the body, and will receive practical instruction in the use of the microscope and in elementary technique.

### III.—Experimental Physiology.

The Class will meet in the Physiological Laboratory one day of each week from 2.30 to 4.30 during the first half of the Winter Session.

Each student will perform the simpler experiments, illustrating the physiology of muscle, nerve, heart and reflex-action, and will receive practical instruction in the use of the sphygmograph, cardiograph, stethograph, laryngoscope, and ophthalmoscope.

The student must supply himself with a dissecting case.

### IV.—Physiological Chemistry.

This Class will meet in the Physiological Laboratory one day each week during the latter half of the Winter Session from 2.30 to 4.30.

Each student will perform the qualitative and quantitative analyses of the urine in its normal and abnormal conditions with special reference to clinical work, with additional practical exercises on the chemistry of the protoeids, carbohydrates, food stuffs and their digestion, blood and bile.

### V.—Advanced Practical Physiology.

SEE FACULTY OF SCIENCE.

The Physiological Laboratory is open daily, except Saturday, during both Summer and Winter Sessions from 10 a.m. to 5 p.m. for the prosecution of original research. Application to be made to the Professor.

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## CHEMISTRY.

*Professor* : PERCY F. FRANKLAND, M.Sc. ; Ph.D. (Würzburg), B.Sc. (Lond.), LL.D. (St. And.), F.R.S.

*Lecturer* : T. S. PRICE, D.Sc. (Lond.), Ph.D. (Leipzig.)

*Demonstrators* :

### Lecture Course on General Inorganic Chemistry.

The Lectures are delivered at 9.30 a.m. on Mondays, Tuesdays, Wednesdays and Thursdays during the Winter Session.

Some of the above meetings of the class will be devoted to tutorial work. Attendance at the tutorial meetings of the class is compulsory, as is the performance of the exercises set by the Professor.

### Lecture Course on Organic Chemistry.

The Lectures are delivered at 9.30 a.m. on Mondays, Wednesdays, and Fridays, during the Summer Session.

Candidates for the First Medical Examination may be required to show knowledge of any of the subjects set forth in the following Syllabus :—

#### I. GENERAL.

Nature of chemical change. Elements and compounds. Chemical affinity and the modes of chemical action. Regularities exhibited in the formation of compounds. Indestructibility of matter. Laws of constant, multiple, and equivalent proportions. Atomic theory. States of matter. Properties of Gases. Kinetic theory. Molecular theory. Avogadro's hypothesis. Atomic and molecular weights. Vapour density, isomorphism, atomic and molecular heats.

Chemical nomenclature, formulæ, equations. Valency.

Solution. Osmotic pressure. Electrolysis. Ionic theory. Acids, bases, and salts.

Thermochemistry. Energy, its transformation and conservation. Liquefaction of Gases.

## II. SPECIAL.

Hydrogen. Oxygen. Ozone. Allotropy. Water; physical properties, natural waters. Hydrogen peroxide. Nitrogen; circulation of, in nature. The Atmosphere. Compounds of nitrogen with hydrogen; oxides of nitrogen; oxyacids of nitrogen; halogen compounds of nitrogen.

Carbon, its circulation in nature. Coal. Oxides of carbon. Hydrocarbons; methane, ethylene, acetylene. Combustion, flame, and luminosity.

Coal-gas, producer-gas, water-gas, oil-gas. Artificial illumination.

Chlorine and the halogens. Their compounds with hydrogen, their oxides, and oxyacids.

Sulphur; compounds with oxygen, hydrogen, and carbon; oxyacids of sulphur.

Phosphorus; compounds with hydrogen, and oxygen; oxyacids of phosphorus. Arsenic, antimony, and bismuth; comparison of their properties and compounds with those of phosphorus and nitrogen.

Boron, and its more important compounds.

Classification of the Elements. Periodic law.

## METALS.

Occurrence, modes of isolation, and general properties of the following metals, and their more important compounds:—Sodium, potassium, barium, strontium, calcium, magnesium, iron, chromium, aluminium, zinc, manganese, nickel, cobalt, mercury, copper, bismuth, cadmium, silver, and gold.

TEXT BOOK.—Newth's Inorganic Chemistry.

## III. ORGANIC CHEMISTRY.

Analysis of carbon compounds. Valency of carbon. Empirical, molecular, and constitutional formulæ. Isomerism.

General properties, methods of preparation, reactions, and relations of the following series of carbon compounds:—Hydrocarbons; methane, ethylene, and acetylene series. Alcohols; methyl and ethyl. Nature of primary, secondary, and tertiary alcohols.

Aldehydes; formaldehyde, and acetaldehyde. Ketones; acetone.

Acids; fatty acids, especially formic and acetic. Ethers; ethyl ether.

Ethereal salts, anhydrides, acid chlorides, and amides. Cyanogen, and its more important derivatives.

Amines; primary, secondary, and tertiary. Polyhydric alcohols; glycerol, mannitol, dulcitol. Polybasic acids,

oxalic, and succinic acids. Hydroxyacids; lactic, malic, and tartaric acids. Asymmetric carbon atom. Stereochemistry. Sugars, starch, Cellulose. Gun-cotton and explosives. Amido-acids. Glycosine and hippuric acid. Urea, uric acid, xanthine, and caffeine. Glucosides. Enzymes.

Coal tar. Benzene, phenol, benzoic and salicylic acids. Nitrobenzene, aniline, diazo-compounds. Pyridine, quinoline, Conine.

Quinine, cinchonine, strychnine, brucine, morphine.

TEXT BOOK.—Remsen's Organic Chemistry.

### Practical Chemistry.

The Class meets at 2 p.m. on Mondays and Wednesdays during the Winter Session, and on Mondays, Tuesdays, Wednesday and Thursdays, during the Summer Session.

The practical work in the laboratory is intended to supplement the instruction given in the lectures, and to make the student personally familiar with the preparation of pure substances, and with the elements of qualitative and quantitative analysis.

### Sanitary Chemistry.

Laboratory Course (Times by arrangement).

*B.Sc. or Diploma in Public Health.*—The Course extends over six months (not less than six hours weekly).

### Synopsis of the Course.

The use of the balance.

The methods of volumetric analysis, including the preparation of standard solutions, alkalimetry and acidimetry.

Kjeldahl's method for the determination of nitrogen.

The analysis of water, including the estimation of total solids (lime, magnesia, sulphates, chlorides, nitrates and nitrites, ammonia and poisonous metals); determination of temporary and permanent hardness, including the preparation of standard soap solution; organic impurities, acidity and alkalinity.

The detection of polluting gases.

Estimation of the amount of carbon dioxide in air.

Simple methods of eudiometry.

Analysis of milk, butter, beer.

Acidity of vinegar.

Determination of Urea.

Estimation of cane and grape sugars.

Microscopic examination of starches, muscular fibre, and the fibres of wool, cotton, and silk.

FEE:—£8 8s.



## PHYSICS.

*Professor* : J. H. POYNTING, M.Sc. ; Sc.D. Cantab, F.R.S.,  
late Fellow of Trinity College, Cambridge.

*Lecturer* : G. E. ALLAN, B.Sc. (Lond.).

*Assistant Lecturer* : G. A. SHAKESPEARE, B.A. (Cantab.),  
B.Sc. (Lond.).

During the Winter Session the Lectures will be on Mondays, Wednesdays and Fridays, at 11.30.

During the Summer Session the Lectures will be on Tuesdays and Thursdays, at 9.30.

The Practical Class will be held in the Laboratory on Fridays, from 2 till 4 in both Sessions.

## Syllabus of Course.

*Properties of Solids—*

Sticking and sliding friction. Strains and stresses. Bulk strain and shear strain. Various kinds of permanent change of shape and rupture. Crystalline and amorphous solids.

*Properties of Liquids—*

Viscosity. Compressibility. Surface tension.

*Properties of Gases—*

Compressibility. Viscosity.

Kinetic theory of matter. Diffusion, solution, osmotic pressure.

*Heat—*

Temperature. Mercury in glass thermometer. Determinations of high and low temperature. Expansion of solids and liquids. Circulation and convection in liquids. Expansion of gases at constant pressure and increase of pressure at constant volume. Gas thermometers. Circulation and convection in gases. Movements of the atmosphere.

Quantity of heat. Specific heat and simple modes of measuring it.

Conduction of heat. Conductivity.



Heat a form of energy. The forms of energy and their transformations according to fixed rates of exchange. The conservation of energy, Joule's method of determining the mechanical equivalent of heat. The nature of heat on the kinetic theory of matter. Limitation in the amount of heat which can be transformed to work.

Change of state. Latent heat. Liquid vapour change. Evaporation. Boiling vapour pressure. Dependence of boiling point on pressure and explanation. Modes of measuring vapour pressure. Explanation of vapour pressure on the kinetic theory. Water vapour in the atmosphere. Hygrometers. Cloud. Fog. Dew. Solid-liquid change. Melting points. Change of volume on melting. Effect of pressure on melting point. Regelation.

Radiation. High and low radiating and absorbing powers. Comparison of properties of radiation from hot bodies and properties of light. Identification. The spectrum. Substances absorb the radiations which they can emit. Dark lines in solar and stellar spectra.

### *Light—*

Light a form of energy. Rectilinear propagation. Shadows. Eclipses. Inverse square law. Simple Photometers. Reflection, refraction, and dispersion. Velocity of light.

Light a form of wave motion. Illustrations of interference. The diffraction grating. Polarisation of light.

Mirrors. Prisms. Lenses. The eye. Simple forms of telescope and microscope.

### *Sound—*

Sound arises from vibrating sources which send out longitudinal waves in air. Characteristics of the waves corresponding to loudness, pitch, and quality. Velocity of sound in air, and other media. Determinations of frequency. Resonance; its use to analyse sounds. Harmonics and upper partials. Quality.

Transverse vibrations of strings. Vibrations of air in pipes. Other vibrating sources.

Beats. Concord and discord. Combination tones.

### *Magnetism—*

Properties of magnets. The two poles; their equality and inseparability. Magnetisation by induction. Methods of making magnets. Inverse square law. Magnetic fields and lines of force. The earth as a magnet. Declination, dip, and intensity.

*Electricity—*

The two kinds of electrification and simple modes of producing them. Conductors and Insulators. The gold leaf Electroscope. Electrification by induction. Frictional Electrical Machines. The Electrophorus. The Wimshurst Machine. The Leyden Jar. Production and disappearance of the two electrifications always in equal quantities. The electric field, considered as the seat of electric strain, electric force, and electric energy. The inverse square law. Potential and capacity. Distribution on conductors.

*Electro-magnetism—*

Electric discharge and the magnetic effects accompanying it. Electro-magnetic waves. Electric current. Voltaic and Storage cells. The magnetic properties of current circuits. The ampere. Galvanometers and amperemeters. Electric motors. Ohm's Law. Resistance. The heat developed in the circuit. Joule's Law. The ohm. The volt. Electrolysis. Electro-chemical equivalents. The induction of currents. Lenz's Law and Faraday's Law. The Dynamo. The Induction Coil.

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## ZOOLOGY AND COMPARATIVE ANATOMY.

*Professor* : T. W. BRIDGE, M.Sc. ; Sc.D. (Cantab.), F.L.S.

*Lecturer and Demonstrator* : WALTER E. COLLINGE,  
B.Sc., F.Z.S.

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A Course of about Forty Lectures will be given during the Winter Session of the second year.

### SYLLABUS.

Distinctive characters of Animals and Plants, as illustrated by a comparison of the structure and physiology of *Hæmatococcus* and *Spirogyra* with *Amæba* and *Hydra*.

The Classification of Animals. Outline of the diagnostic characters of the primary groups of animals.

The Cœlom ; its mode of development in different groups, and its derivatives.

Classification of Vertebrates. Distinctive features of the different classes into which the Vertebrates are divided.

Morphology of the skeleton ; the organs of digestion, circulation, respiration, excretion and reproduction ; and the nervous system, in such typical Vertebrates as the Dog-fish (*Scyllium*), the Frog, (*Rana*), the Lizard (*Lacerta*), the Pigeon (*Columba*), and the Rabbit (*Lepus*).

The classification of Mammalia. Distinctive characters of the Prototheria (*Echidna*), Metatheria (*Macropus*), and Eutheria (*Lepus*).

Comparison of Man (*Homo*) with other Mammalia.

Vestigial organs in Man and other Mammalia—their nature and significance.

Methods of embryonic nutrition ; ova and food-yolk ; placentas. Direct and larval development.

### Laboratory Class.

The Practical work will include the dissection of the Dog-fish, Frog, Lizard, Pigeon and Rabbit.

*Lecture Days*.—Mondays and Wednesdays, at 4 p.m.

*Practical Class*.—Mondays and Wednesdays, from 2 till 4 p.m.

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## MEDICINE.

*Professor* : R. SAUNDBY, M.Sc. ; M.D. (Edin.), F.R.C.P.,  
LL.D.

*Professor* : A. H. CARTER, M.Sc. ; M.D. (Lond.), F.R.C.P.

*Assistant* : J. W. RUSSELL, M.A., M.D. (Cantab.), M.R.C.P.

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*Lecture Days*.—Tuesday, Wednesday, and Friday, at  
3 p.m.

This course extends over two Winter Sessions, and includes—

1. An explanation of the nomenclature and classification of disease. The principles of etiology, symptomatology, diagnosis, prognosis, and treatment of disease in general.
2. A description of special diseases, together with their causation, prevention, diagnosis, prognosis and treatment.

Specific Infectious Diseases.

Diseases of the Nervous System, Functional and Organic ;  
of the Brain, Spinal Cord, and Peripheral Nerves.

Diseases of the Muscles.

Diseases of the Heart and of the Blood Vessels.

Diseases of the Respiratory System, Functional and Organic ;  
of the Larynx, Trachea, Lungs, and Pleural Sacs.

Diseases of the Digestive System.

Diseases of the Kidneys.

Constitutional Diseases.

The Intoxication and Sunstroke Diseases of the Blood and  
Ductless Glands.

Diseases due to Animal Parasites.

Diseases of the Skin.

The Course will be illustrated by specimens from the Pathological Museum, and by drawings, diagrams, and charts.

Written Class Examinations are held during each term and are compulsory upon all candidates for the M.B. Degree. Regular tutorial instruction is given by Dr. Russell to all students of the Class who wish to attend.

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## SURGERY.

*Professor* : BENNETT MAY, M.Sc. ; M.B., B.S. (Lond.),  
F.R.C.S.

*Professor* : GILBERT BARLING, M.Sc. ; M.B., B.S. (Lond.),  
F.R.C.S.

*Assistant* : GEORGE HEATON, M.A., M.B. (Oxon.),  
F.R.C.S.

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*Lecture Days*.—Tuesday, Wednesday, and Friday, at 4 p.m.

This Course, extending over two Winter Sessions, is devoted to a systematic consideration of the Principles and Practice of Surgery. It includes a complete description of—

1. General Principles, as illustrated by Repair and its aberrations.

Inflammation and its results.

The various forms of blood poisoning.

Tuberculosis. Syphilis.

Tumour formations, &c.

2. The Surgery of Special Regions as far as possible.

The Assistant to the Chair of Surgery gives tutorial instruction to Senior Students, and holds preparatory classes for the final Examination. Written Examinations are held at stated periods.

The Course will be illustrated by Specimens from the Pathological Museum, and by drawings, diagrams, and charts.

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## PATHOLOGY AND BACTERIOLOGY.

*Professor*: R. F. C. LEITH, M.Sc. ; M.A., M.B. (Edin.),  
F.R.C.P.E.

*Assistant Lecturers* { JAMES MILLER, M.B., Ch.B., B.Sc.  
F.R.C.P.E.  
*in Bacteriology*: { C. LEEDHAM-GREEN, M.B., Ch.B.,  
F.R.C.S.

*Demonstrator in Pathology*: J. D. STANLEY, M.D. (Edin.)

*Assistant Curators* { J. R. CHARLES, M.A., M.D. (Cantab.)  
*of the Pathological* { J. T. HEWETSON, M.D. (Edin.),  
*Museum*: { F.R.C.S.  
THOMAS WILSON, M.D. (Lond.),  
F.R.C.S.

### A.—Ordinary course for Medical Students.

This Course consists of two parts, viz., (1) a Systematic Course of Lectures on General and Special Pathology and Bacteriology, and (2) a Practical Course upon the same subjects.

#### I.—The Systematic Course.

The Lectures commence on October 2nd, and are given daily, at 1 o'clock. They are fully illustrated by Macroscopic, Microscopic and Lantern Preparations, and a Special Series of Demonstrations on Morbid Anatomy is also given weekly. The Lectures include:—

##### I. GENERAL PATHOLOGY :—

- (1) Altered conditions of the circulation.
- (2) Inflammation.
- (3) Retrogressive Disturbances of Nutrition.
- (4) Tumours.
- (5) Animal Parasites.
- (6) Pathogenic Bacteriology.

##### 2. SPECIAL PATHOLOGY :—

The systematic study of the Etiology, Morbid Anatomy, and Histology of the diseases of the systems and organs of the body.



## II.—The Practical Course.

This Class commences on Wednesday, April 22nd, at 2 o'clock, and meets on Monday, Wednesday and Friday of each week, each meeting occupying two hours. The Histological and other Methods of practical pathological investigation are studied, and the various diseased organs and tissues are examined in detail, both macroscopically and microscopically by each student. He also does some practical work in Elementary Bacteriology.

Each student is supplied with all the necessary re-agents and apparatus, but students must provide themselves with a microscope.

### B.—Course of Advanced Bacteriology.

This Class begins on Tuesday, January 20th, at 4 o'clock, and meets thrice weekly until the end of March, each meeting occupying two hours. In addition there are special meetings in sections according to arrangement. This Course qualifies for the various Diplomas and Degrees in Public Health of this University and other Bodies. It consists of lectures, demonstrations, laboratory instruction, and practical work in Bacteriology, especially in relation to disease, public health, its application to various industries, the disposal of sewage, &c.

It includes :—

I. GENERAL.—Methods of Sterilisation. Preparation of Culture Media. Isolation and Cultivation of Germs. Methods of Examination, staining, &c., of Bacteria. The separation of their products, &c.

II. SPECIAL.—(1) The systematic study of the various pathogenic and the more important non-pathogenic bacteria in regard to cultural and morphological characters, methods of producing disease, antitoxin treatment and immunity. (2) The examination of water, milk, foods, &c. (3) Antiseptics and sterilisation in detail, &c., &c.

FEE :—Four Guineas.

INCIDENTAL FEE :—One Guinea.

### C.—Course of Clinical Pathology & Bacteriology.

A Course suited to qualified medical men is given in the Winter Sèssion, commencing on Tuesday, October 14th, at 4 o'clock. It meets twice or thrice weekly for about two months; hours of meeting, 4 to 5.30. It is devoted to the pathological and bacteriological methods of practical importance in the diagnosis of disease in hospital or private practice. It includes demonstrations and practical work in—

- (1) Histological Methods for the examination of tumours, pieces of tissue and uterine scrapings.
- (2) The examination of the urine, chemically and microscopically.
- (3) The examination of the fæces.
- (4) The examination of the gastric contents, for free HCl, for disintegrated blood, &c.
- (5) The examination of the sputum.
- (6) The examination of fluids obtained by puncture of serous and other effusions, by lumbar puncture, by puncture of echinococcal and other cysts.
- (7) The examination of the blood.
- (8) A short consideration of those bacteria commonly met with in pathological processes in man, *e.g.*, the Staphylococci and streptococci, the gonococcus, the pneumococcus, the typhoid bacillus and colon bacillus, the diphtheria bacillus and the tubercle bacillus.

FEE :—£3 3s.

INCIDENTAL FEE :— 15s.

The Pathological and Bacteriological Laboratory is open daily from 9 a.m. till 6 p.m. for the prosecution of private research, under the direction of Professor Leith and his assistants, to whom applications should be made.

The Pathological Museum is open daily, from 9 a.m. till 5 p.m., under the direction of Professor Leith. Several type-written catalogues, containing descriptions and particulars of the specimens, are available for consultation.

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## HYGIENE AND PUBLIC HEALTH.

*Professor:* A. BOSTOCK HILL, M.Sc.; M.D.,  
D.P.H. (Camb.), F.I.C.

*Assistant:*

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*Lecture Day.*—Mondays, at 3 p.m., during the Winter Session.

This Course will include instruction in Hygiene as required for the ordinary Pass Examination, and will also be specially adapted to the requirements of candidates for degrees and diplomas in Public Health and State Medicine. The Lectures will be illustrated by experiments, diagrams, and a complete set of models. In connection with the Department there is a collection of Sanitary Appliances open to all students attending this class.

The subjects treated will be as follows:—

Introductory, aim and scope of Hygiene, results already obtained.

Water supply—varieties of—quantity and quality of water.

Diseases produced by bad water. Water Analysis.

Air and Ventilation, Impurities of Air, Standard of Purity, Natural and Mechanical Ventilation, Appliances.

Food and Diet, Unwholesome Food, Adulteration of Food, Characteristics of good Meat, Fish, &c. Diseases of Animals in relation to the Health of Man.

The Soil in relation to Health.

The Dwelling and Sanitary appliances in connection therewith.

Drainage and Construction, Scavenging, Disposal of Sewage and Refuse.

Climate and Meteorology.

Infectious Diseases and Methods of Disinfection, Nature of Contagia, Immunity, Isolation, Quarantine, Vaccination.

Statistics in relation to Health.

Offensive Trades.

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**MATERIA MEDICA AND PHARMACY.**

*Lecturer* : J. COOLE KNEALE, L.R.C.S., L.R.C.P. (Edin.),  
M.P.S.

*Demonstrator* : F.R. GREENWOOD, M.D. (Lond.), M.R.C.S.

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*Lecture Days*.—Tuesdays and Thursdays, at 2 p.m., during the Summer Session.

Materia Medica comprises the subjects of Pharmacognosy and Pharmacy.

Instruction in Materia Medica is given in—

- (a) A Course of eighteen Lectures.
- (b) Eighteen Practical Pharmacy Classes.
- (c) Thirteen Tutorial Classes.

**A.—Lectures on Materia Medica.**

This Course includes the natural history, sensible and chemical properties and modes of administering remedies, ordinarily so-called. Such remedies consist of

- (a) Inorganic Substances.
- (b) Chemical Products.
- (c) Vegetable Substances.
- (d) Animal Substances.

**B.—Practical Classes.**

Practical instruction is given in the following subjects, which cannot be satisfactorily taught in lectures :—

- (1) Pharmacy, or the processes for obtaining the Pharmaceutical preparations of drugs.
- (2) Prescription Writing.
- (3) Dispensing, or the making up of medicines in forms suitable for administration in disease.

**C.—Tutorial Classes.**

These will consist of a recapitulation of the Lectures and Practical Classes.

Students have access to the Materia Medica Museum, where facilities are afforded for the practical examination of specimens.

The Museum contains (1) a collection of the official and officinal drugs, organic and inorganic ; (2) a collection of drugs from all sources for lecture purposes ; (3) a collection of the whole of the galenical preparations of the British Pharmacopœia ; (4) a complete set of apparatus used in Pharmaceutical work.

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## THERAPEUTICS.

*Professor:* ARTHUR FOXWELL, M.Sc. ; M.A., M.D.  
(Cantab.), F.R.C.P.

*Assistant:* W. A. POTTS, B.A. (Cantab.), M.D., C.M.  
(Edin.)

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*Lecture Days.*—Mondays and Thursdays, at 3 p.m., during the Winter Session.

### Syllabus.

Hygiene (personal and municipal).

Regulation of Habits.

Diet.

Rest.

Exercise (including Massage, Assisted Movements, and Gymnastics).

Bathing and Drinking Spas, their efficacy and its rationale ; the choice of a Spa.

Climate.

Heat and Cold.

Electricity.

Operations.

Nursing.

Drugs ; their Physiological action and consequent use in disease ; Modes of Administration ; Doses, and the circumstances which modify these ; Systematic Examination of the actions of various drugs in health on the tissues and systems of the body ; consideration of their consequent uses in diseases.

The art of Prescribing.

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## MIDWIFERY.

*Professor:* EDWARD MALINS, M.Sc. ; M.D. (Edin.),  
F.R.C.P.

*Assistant:* C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

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*Lecture Days.*—Mondays and Thursdays, at 4 p.m., during the Winter Session.

The course comprises—The Physiological Anatomy of the pelvis and organs of generation in the female. The Physiology and development of the ovum and foetus. The Physiology of pregnancy—the change effected by it ; the diagnosis and the management of pregnancy. The Physiology and mechanism of labour. The conduct of normal labour. The Physiology and management of Child-bed. Obstetric Surgery. The Pathology of pregnancy. The Pathology of labour. The Diseases of Child-bed.

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## GYNÆCOLOGY.

*Professor:* JOHN W. TAYLOR, M.Sc. ; M.D., F.R.C.S.

*Assistant:* C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

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*Lecture Days.*—Tuesdays, Wednesdays, and Fridays, at 3 o'clock, during the Summer Session.

### SYLLABUS.

#### General Anatomical Considerations :

The boundaries and supports of the Peritoneal Cavity.  
The Pelvic Diaphragm and Pelvic Floor.  
The Peritoneum.

#### The Anatomy of the External and Internal Genitalia :

Ovulation.  
The Retro-peritoneal Vessels.  
The Parovarium.

#### Normal Menstruation :

Amenorrhœa.  
Menorrhagia.  
Dysmenorrhœa.



## Gynæcological Examination.

Diseases of the Vulva.

Injuries and Diseases of the Vaginal Entrance.

Diseases and Injuries of the Vagina.

Genital Atresia and Genital Doubling.

(Vaginal and Abdominal Section.)

## Diseases of the Uterus :

Inflammatory Diseases of the Uterus.

Adenomatous Disease of the Uterus.

Displacements of the Uterus.

Inversion of the Uterus.

Myoma of the Uterus.

Cancer and Sarcoma of the Uterus.

## Diseases of the Ovaries :

Inflammation of the Ovaries.

New Growths—

Ovarian Cystoma.

Ovarian Dermoids.

Ovarian Papilloma.

Ovarian Fibroma.

Ovarian Sarcoma and Carcinoma.

Parovarian Cysts.

Broad Ligament Tumours.

## Diseases of the Fallopian Tubes :

Gonorrhœal Salpingitis.

Tubercular Salpingitis.

"Septic" Salpingitis.

New Growths of the Fallopian Tubes.

Extra Uterine Pregnancy and Intra-peritoneal Hæmatocele :

Ovarian Pregnancy.

## Tubal Pregnancy :

Tubo-Abdominal Pregnancy.

Tubo-Ligamentary Pregnancy.

Tubo-Uterine Pregnancy.

*Demonstrations.*—The Assistant holds a class for instruction in Midwifery and Gynæcology for students preparing for their final examinations, on Tuesdays, at 12 noon throughout the Winter and Summer Sessions.

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## FORENSIC MEDICINE & TOXICOLOGY.

*Professor* : J. T. J. MORRISON, M.Sc. ; M.A., M.B., B.C.  
(Cantab.), F.R.C.S.

*Assistant* : R. A. LYSTER, M.B., Ch.B., B.Sc. (Lond.), D.P.H.

### Forensic Medicine.

*Lecture Days*.—Mondays and Wednesdays, at 4.0 p.m., during the Summer Session.

The Course treats of the several branches of Legal Medicine necessary to the medical practitioner for his guidance in Medico-Legal Inquiries, and for giving evidence in civil and criminal causes in Courts of Justice.

#### SYLLABUS.

Historical outline of the legal and social relations of the Medical profession in England. Rise of physicians, surgeons, and apothecaries, and their Corporations. The first Medical Act, 1511 ; the Apothecaries' Act, 1815 ; the Medical Acts of 1858 and 1886. General Medical Council. The Medical Register.

The scope of Forensic Medicine. Legal responsibilities and duties of medical men. The process of law before Coroner, Magistrate, and Judge. Medical Evidence.

The signs of death. Determination of the date of death. The causes of death, and particularly of sudden death. The post-mortem as a medicolegal inquiry. Exumation.

Identification of the living and of the dead. Determination of age, sex, stature, and personal peculiarities.

Death by violent or unnatural causes—drowning, hanging, strangulation, suffocation, and smothering ; wounds and mechanical injuries ; extremes of temperature ; explosives ; electric shock ; lightning stroke ; starvation. Indications of accident, suicide, or homicide.

Wounds and other personal injuries ; question of accident or assault ; compensation claims in such cases.

Offences against chastity ; rape ; unnatural offences.

Criminal abortion. Live birth. Infanticide.

Malapraxis and malingering.

Lunacy certificates.

Life Assurance.

The Lectures will be supplemented by a practical Course of laboratory work.

SYLLABUS.

Human Blood: its microscopical, chemical, and spectroscopical features. Special characters of the blood of other mammals, birds, fishes, and amphibians.  
 Discrimination of stains resembling blood: iron salts, vegetable colors, aniline dyes.  
 Seminal stains. Gonorrhœal pus.  
 Hair of man and domestic animals.  
 Fibres: cotton, linen, wool, silk.  
 Marks made by vitriol and other mineral acids.  
 Demonstration of the Fœtus at various ages.  
 Finger-prints and footmarks.

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Toxicology.

*Lecturer*: A. BOSTOCK HILL, M.Sc.; M.D., D.P.H. (Camb.), F.I.C.

*Assistant*: R. A. LYSTER, M.B., Ch.B., B.Sc. (Lond.), D.P.H.

*Lecture Day*.—Wednesdays, at 4 o'clock, during the Summer Session.

This course comprises a discussion on the mode of action of poisons and the various circumstances influencing this; classification of poisons; methods of procedure in cases of poisoning; detection and estimation of poisons; symptoms; post-mortem appearances observed, and treatment to be adopted in cases of poisoning.

The lectures are supplemented by a Practical Course of laboratory work.

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MENTAL DISEASES.

*Professor*: E. B. WHITCOMBE, M.Sc., M.B., Ch.B., M.R.C.S.

*Lecture Days*:—During the Summer Session, Tuesdays and Thursdays, at 2 p.m.

The Course will consist of an account of the various forms of Mental Disease, including their history, etiology, pathology, symptoms, and treatment. Illustrations of living examples, and pathological specimens will be utilised as far as possible. The medico-legal aspect of insanity will be included in the course.

## OPERATIVE SURGERY.

*Professor:* JORDAN LLOYD, M.Sc. ; M.B., M.S. (Durh.),  
F.R.C.S.

A class of Operative Surgery, consisting of at least ten demonstrations, is held each Winter, after Christmas. All the chief operations in surgery are performed on the dead body by the Professor, and also by members of the Class.

## OPHTHALMOLOGY.

*Professor:* PRIESTLEY SMITH, M.Sc., M.B., Ch.B., F.R.C.S.

*Lecture Days.*—Mondays and Wednesdays, at 4 p.m., during the Winter Session (January to March).

These lectures deal systematically with the nature and treatment of the principal diseases of the eye. The several parts of the subject are taken in the following order:—

1. Diseases of the Conjunctiva.
2. Diseases of the Cornea.
3. Diseases of the Uveal Tract : Iritis, Cyclitis, Choroiditis.
4. Injuries and Sympathetic Ophthalmia.
5. Glaucoma.
6. Cataract.
7. Diseases of the Retina, Optic Nerves, Tracts, and Centres.
8. Presbyopia and other Errors of Accommodation.
9. Hypermetropia and Astigmatism.
10. Myopia.
11. Strabismus and other disorders of the Motor Apparatus.
12. Diseases of the Eyelids, Tear-passages and Orbit.

In connection with this Course, Clinical demonstrations and practical instruction in the methods of examining the eye, are given in the Eye Department of the Queen's Hospital.

## TROPICAL DISEASES.

Should any students require instruction in this subject a course of twelve lectures will be delivered during the Summer Session, by Professor Saundby.

The course will consist of a description of the special diseases of tropical countries, and will be illustrated by pathological specimens, diagrams, &c.

FEE:—£1 1s.

**FIRST YEAR TIME TABLE.**

SUBJECTS.	Mon.	Tu.	Wed.	Th.	Fri.
<b>WINTER SESSION.</b>					
Chemistry.....	9.30	9.30	9.30	9.30	..
„ Practical .....	2.0	..	2.0	.	..
Anatomy .....	10.30	..	10.30	..	..
Practical Anatomy .....			Daily.		
Physics .....	11.30	..	11.30	..	11.30
„ Practical .....	..	..	..	..	2.0
<b>SUMMER SESSION.</b>					
Chemistry.....	9.30	..	9.30	..	9.30
Practical Chemistry .....	2.0	2.0	2.0	2.0	..
Physiology—Practical .....	11.0	11.0	11.0	11.0	11.0
Physics .....	..	9.30	..	9.30	..
„ Practical .....	..	..	..	..	2.0

**SECOND YEAR TIME TABLE.**

<b>WINTER SESSION.</b>					
Anatomy .....	12.0	12.0	12.0	12.0	..
Practical Anatomy .....			Daily.		
Physiology .....	..	10.30	10.30	10.30	10.30
„ Practical .....	..	2.30	..	..	..
Comparative Anatomy:—					
Lectures .....	4.0	..	4.0	..	..
Practical .....	2.0	..	2.0	..	..
<b>SUMMER SESSION.</b>					
Anatomy .....	12.0	..	12.0	..	12.0
„ Practical .....			Daily.		
Physiology .. .. .	..	3.0	..	3.0	..

**THIRD YEAR TIME TABLE.**

SUBJECTS.	Mon.	Tu.	Wed.	Th.	Fri.
<b>WINTER SESSION.</b>					
Medicine .....	..	3.0	3.0	..	3.0
Surgery .....	..	4.0	4.0	..	4.0
Pathology .....	1.0	1.0	1.0	1.0	1.0
Public Health.....	3.0	..	..	..	..
<b>SUMMER SESSION.</b>					
Practical Pathology .....	2.0	..	2.0	..	2.0
Materia Medica .....	..	2.0	..	2.0	..
Practical Pharmacy .....	..	3.0	..	3.0	..

**FOURTH YEAR TIME TABLE.**

<b>WINTER SESSION.</b>					
Medicine .....	..	3.0	3.0	..	3.0
Surgery .....	..	4.0	4.0	..	4.0
Therapeutics .....	3.0	..	..	3.0	..
Midwifery .....	4.0	..	..	4.0	..
<b>SUMMER SESSION.</b>					
Gynæcology .....	..	3.0	3.0	..	3.0
Forensic Medicine .....	4.0	..	..	..	4.0
„ Practical.....	..	4.0	..	4.0	..
Toxicology .....	..	..	4.0	..	..
Mental Diseases .....	..	2.0	..	2.0	..

**FIFTH YEAR TIME TABLE.**

<b>WINTER SESSION.</b>					
Surg. and Med. Anatomy (Oct. to Dec.) .....	3.30	..	3.30	..	3.30
Ophthalmology (Jan. to March) .....	4.0	..	4.0	..	..
Operative Surgery .....	After Christmas.				



## REGULATIONS FOR DEGREE AND DIPLOMA IN PUBLIC HEALTH.

### General Conditions.

1.—All Candidates must be registered under the Medical Act.

2.—The Examinations will be held in the months of January and June, and will consist of two parts. No Candidate will be allowed to pass Part II. until he has passed Part I.

3.—Candidates may enter for Parts I. and II. separately or at the same time.

4.—The Examination in each part will be written, oral and practical.

5.—Candidates intending to present themselves for either part of the Examination must give fourteen days' notice in writing to the Registrar of the University.

6.—The Fee for each part of the Examination is £5.

### Conditions of Admission to the Examinations.

1.—For Candidates registered under the Medical Act on or *before* the 1st of January, 1890.

Candidates so registered will be allowed to sit for examination on producing certificate of registration.

2.—For Candidates registered under the Medical Act *after* the 1st of January, 1890.

Candidates will be admitted to examination in Part I. on producing evidence :—

(1) Of being at least 23 years of age, and of having been possessed of a registrable qualification in Medicine, Surgery and Midwifery, for a period of twelve months.

(2) Of having received, after obtaining a registrable Qualification, during six months, practical instruction in Hygienic Chemistry, Bacteriology, and the Pathology of the Diseases of Animals transmissible to Man.

NOTE.—Graduates in Medicine of the University of Birmingham, or past students who have taken out the whole of their Curriculum in the Birmingham Medical School may attend the required instruction in Chemistry and Bacteriology either in this or in some other University, University College, or Medical School in Great Britain or Ireland.

Other candidates must attend the special courses of instruction in Chemistry and Bacteriology required for the Diploma in the University of Birmingham.

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Candidates will be admitted to examination in Part II. on producing evidence :—

(1) That, after obtaining a registrable Qualification, they have, during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under *Rule 2*) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration, under the supervision of

(a) In England and Wales, the Medical Officer of Health of a County or of a single Sanitary District having a population of not less than 50,000, or a Medical Officer of Health devoting his whole time to Public Health work ; or

(b) In Scotland, a Medical Officer of Health of a County or Counties, or of one or more Sanitary Districts having a population of not less than 30,000 ; or

(c) In Ireland, a Medical Superintendent Officer of Health of a District or Districts having a population of not less than 30,000 ; or

(d) A Medical Officer of Health who is also a Teacher in the Department of Public Health of a recognised Medical School.

\* \* The certificate of an Assistant Medical Officer of Health of a County or of a single Sanitary District having a population of not less than 50,000 may be accepted as evidence under *Rule 3*, provided the Medical Officer of Health of the County or District in question permits the Assistant Officer to give the necessary instruction and to issue certificates.

Provided that the period of six months may be reduced to a period of *three* months (which shall be distinct and separate from the period of Laboratory instruction required under *Rule 2*), in the case of any Candidate who produces evidence that, after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on Public Health Administration, given by a Teacher in the Department of Public Health of a recognized Medical School.

(2) That, after obtaining a registrable Qualification, he has attended during three months the practice of a Hospital for Infectious Diseases recognised by the University, at which opportunities are afforded for the study of Methods of Administration.

### DEGREE IN PUBLIC HEALTH.

Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health, by conforming to all the requirements laid down for candidates for the Diploma in Public Health, and, in addition, they must have attended a three months' course of \*Geology in the University.

The Examination for the Degree is not the same as that for the Diploma, and a considerably higher standard of knowledge will be exacted at the former.

The whole of the instruction, with the exception of out-door Sanitary work, required for the Degree and Diploma in Public Health can be taken out in the University.

FEES :—

Sanitary Chemistry .....	£8	8	0
Caution Money, deposit	1	0	0
Bacteriology .....	4	4	0
Incidental Fee .....	1	1	0
Geology .....	2	2	0

Syllabus for the Examinations.

PART I.

- 1.—Physics in their application to Health, and with reference to Ventilation and Heating. Water Supply and Sewerage.
- 2.—Chemistry in its relation to Air, Water, Food, Soil, and Sewage.
- 3.—Microscopical Examinations of Air, Water, Food, Articles of Clothing, Parasites, &c.
- 4.—Bacteriology in relation to Sanitary Work.

PART II.

- 1.—The Origin, Pathology, and Prevention of Disease; with special reference to Infectious Disease.
- 2.—Effects of Unwholesome Air, Water, and Food.
- 3.—Diseases of Animals in relation to the Health of Man.
- 4.—Influence of Occupation—Unhealthy Trades.
- 5.—Influence of Climate.
- 6.—Sanitary Administration in relation to requirements of Houses and other buildings, Sanitary Engineering.
- 7.—Construction, Arrangement, and Management of Hospitals.
- 8.—Statistics in relation to Health.
- 9.—Sanitary Law, including Bye-laws, Orders and Regulations.
- 10.—Duties of Sanitary Officers.

**SCHOLARSHIPS AND PRIZES.****Ingleby Scholarship.**

The Ingleby Scholarship (value £10), founded in memory of the late Dr. Ingleby, formerly Professor of Midwifery in the Queen's College, will be offered annually to the candidate who obtains at the June Final Examination the highest marks in the subjects of Midwifery and Gynæcology.

**Sands-Cox Scholarship.**

The Sands-Cox Scholarship, of the value of £42, is awarded to the Candidate amongst those entering as students of the Faculty of Medicine in the month of October, who shall have obtained the highest marks at the Matriculation Examination in the previous month of June.

Provided that

- (a) No Candidate shall be elected whose age exceeds nineteen on the first day of the examination.
- (b) No Candidate shall be elected who shall not have attained to a position in the first class, and satisfied the Examiners that he has shown sufficient merit for the award.
- (c) The payment shall be made in two annual instalments, and in the form of remission of fees.
- (d) The second instalment shall not be paid until the scholar presents a certificate from the Dean, showing that his first year's work has been satisfactory.

**Queen's Scholarships.**

Queen's Scholarships of the aggregate value of £42 are allotted annually, on the recommendation of the Examiners, to the students taking the first place at the June University Examinations in in the following list, provided that in all cases the work done by the students is of sufficient merit :—



(a) Chemistry and Physics	...	...	£10	10	0
(b) Anatomy, Comparative Anatomy, and Physiology	...	...	£10	10	0
(c) Pharmacology, Pathology, Forensic Medicine, Toxicology, and Public Health	...	...	£10	10	0
(d) Final Examination	...	...	£10	10	0

### Sydenham Scholarships.

1. One or more Scholarships of the value of £42 each will be offered annually.

2. The Scholar or Scholars will be elected by vote of the Council on the recommendation of the Faculty of Medicine.

3. The Scholarships are limited to the orphan sons of legally qualified Medical Men on entrance as first year students of the University.

4. The orphan sons of former students of the Binningham Medical School will have priority of election.

5. No Sydenham Scholar will be elected whose age exceeds 23 years on the day of election.

6. The Scholarship may be held for three years, subject to good behaviour ; and one-third of the Scholarship will be paid annually.

7. All applications for a Sydenham Scholarship should be addressed to the Dean of the Medical Faculty on or before the 3rd of October in each year, and each candidate is required to furnish such evidence of eligibility as he considers necessary.

### Russell Memorial Prize.

This prize was founded by students of the Queen's College in memory of the late Dr. James Russell, formerly Honorary Physician to the General Hospital. It is a prize of books awarded annually to the student who, not being of more than six years' standing as a student of the School of Medicine of the University, shall pass the best examination in the subject of nervous diseases.



### Myers Travelling Studentship.

In memory of his son, Dr. Walter Myers, who died of yellow fever when making an investigation of that disease for the Liverpool School of Tropical Medicine, his father, Mr. Geo. Myers, of Birmingham, has founded and endowed a travelling studentship in the University of Birmingham. Holders of this studentship, which will be awarded early in October in each year, must possess the degrees in medicine and surgery of the University of Birmingham. They must also possess the degree of B.Sc., which must have been obtained either at the University of Birmingham or London, or at either of the Universities of Oxford or Cambridge, should such degree be obtainable at either of those Universities. They must study for a year at one of certain Universities in Germany, and any papers that they may publish must appear under the name of the Walter Myers Studentship. The studentship, which will be of the value of £150, will only be awarded should a candidate of sufficient promise present himself. The subjects in which the student may pursue investigations are pathology or clinical medicine, combined with pathological research. The studentship may be prolonged over a second year, but at a diminished stipend. The Deed of Foundation of the studentship is printed in an Appendix, from which further particulars may be obtained.

Applications for this studentship must be sent in to the Dean of the Medical Faculty on or before October 1st.

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### Entrance Scholarship for Dental Students.

1. One will be offered annually of the value of £37 10s.
2. It will be awarded to the student who, entering for the Dental Degree of the University in October, or having entered not earlier than the previous May, shall pass the best examination in the subjects studied during his apprenticeship.
3. Candidates must be under the age of twenty-one years.
4. Application for admission must be sent to the Dean on or before October 3rd.

## MEDICAL FEES.

A Composition Fee of Eighty Guineas, payable in one sum (or in two instalments of forty guineas each at the commencement of the first and second years of studentship) admits to the full course of lectures and practical work required by the University, with the exception of those subjects which are studied at the Clinical Hospitals, &c. This course also qualifies for the examinations of the various Conjoint Boards and of other British Universities. This fee does not include, however, courses for Public Health Diplomas, nor those for the Preliminary Scientific Examination of the University of London, nor the additional courses required for the Fellowship of the Royal College of Surgeons, and other such higher diplomas and degrees. It is not a *perpetual* fee, and students allowing their courses to fall into arrear, without having previously obtained the written permission of the Dean to do so, are liable to the forfeiture of the unused portion of their Composition Fee.

### Membership Fees.

Composition Students on entering pay once for all a Membership Fee of £3 3s., which admits them to the Faculty for five years. At the expiration of this period they may, at the discretion of the Dean, be called upon to pay terminally the membership fees demanded from occasional students.

Occasional or Class Students are required to pay £1 1s. for each Winter Session and 10s. 6d. for each Summer Session during which they are in attendance at the University.

### Incidental Fees.

These fees are not included in the Composition Fee. They are intended to cover the use of apparatus, material, &c., used in the various Practical Classes. The full list of such fees is as follows:—

	£	s.	d.
Dissecting Room (each Winter) .....	1	11	6
"      "      (each Summer) .....		10	6
Practical Physiology .....	2	2	0
Practical Pathology.....	1	11	6

	£	s.	d.
Practical Pharmacy .. .. .	1	1	0
Operative Surgery .. .. .	0	10	6
Practical Forensic Medicine and Toxicology	0	10	6

NOTE.—With the exception of the Dissecting Room Fees, all these sums are payable to the Secretary.

### Class Fees.

Students wishing to do so can pay for each class as they take it, the following table showing the fees for each course :—

	£	s.	d.
Anatomy and Practical Anatomy (each Winter) .. .. .	11	11	0
Anatomy and Practical Anatomy (Summer)	3	3	0
Physiology .. .. .	6	6	0
Physiology, Practical .. .. .	4	4	0
Medicine .. .. .	6	6	0
Surgery .. .. .	6	6	0
Chemistry .. .. .	4	4	0
Chemistry, Practical .. .. .	3	3	0
Comparative Anatomy .. .. .	5	5	0
Physics .. .. .	5	5	0
Materia Medica and Pharmacy .. .. .	2	2	0
Pathology .. .. .	4	4	0
Pathology, Practical .. .. .	4	4	0
Therapeutics .. .. .	4	4	0
Forensic Medicine and Toxicology .. .. .	4	4	0
Public Health .. .. .	3	3	0
Operative Surgery .. .. .	2	2	0
Lunacy and Mental Diseases .. .. .	2	2	0
Ophthalmology .. .. .	1	1	0
Applied Anatomy .. .. .	1	1	0
Midwifery .. .. .	4	4	0
Gynæcology .. .. .	2	2	0

NOTE.—Students desiring to repeat any course will be required to pay a half fee for such course. In the case of Practical Anatomy this will be £3 3s.

### Examination Fees.

The fees payable before a student is admitted to any or the examinations are set down below. Students failing at any examination will be called upon to pay a half-fee when next presenting themselves for the same examination.

	£	s.	d.
Matriculation .....	2	0	0
First Examination .....	5	0	0
Second       ,, .....	5	0	0
Third        ,, .....	1	0	0
Fourth       ,, .....	3	0	0
Final        ,, .....	5	0	0
M.D., or M.Ch. ....	10	0	0

For the convenience of those desiring to ascertain the total cost of obtaining the degrees of Bachelor of Medicine and Bachelor of Surgery, the following table has been drawn up. It presumes that the student enters by the Composition system and makes no allowance for failures at examinations. No allowance is made either for the cost of books, instruments, or for private tuition, should such be required.

	£	s.	d.	£	s.	d.
MATRICULATION ... ..	2	0	0			
				2	0	0
FIRST WINTER.—Membership Fee ... ..	3	3	0			
Half Composition ... ..	42	0	0			
Dissections ... ..	1	11	6			
<i>First Examination</i> ... ..	5	0	0			
				51	14	6
FIRST SUMMER.—Practical Physiology ... ..	2	2	0			
Microscope ... ..	8	11	0			
				10	13	0
SECOND WINTER.—Half Composition ... ..	42	0	0			
Hospital Composition ... ..	22	10	0			
Dissections ... ..	1	11	6			
				66	1	6
SECOND SUMMER.—Dissections ... ..	0	10	6			
<i>Second Examination</i> ... ..	5	0	0			
				5	10	6
THIRD WINTER.—Half Hospital Composition..	22	10	0			
				22	10	0
THIRD SUMMER.—Practical Pathology... ..	1	11	6			
,,       Pharmacy... ..	1	1	0			
Microscope ... ..	5	6	6			
<i>Third Examination</i> ... ..	1	0	0			
				8	19	0
Practical Forensic Medicine						
and Toxicology ... ..	0	10	6			
FOURTH SUMMER.— <i>Fourth Examination</i> ... ..	3	0	0			
				3	10	6
FIFTH YEAR.—Operative Surgery ... ..	0	10	6			
Vaccination ... ..	1	11	6			
Fever Hospital ... ..	2	2	0			
Asylum ... ..	3	3	0			
<i>Final Examination</i> ... ..	5	0	0			
				12	7	0
				£183	6	0

NOTE.—All fees for University Courses and Incidentals (with the exception of Dissecting-room fees) are payable to the Secretary. Cheques should be drawn in favour of Mr. Geo. H. Morley.

Before attending any class students must obtain a card from the Dean, which they must *at once* present to the Secretary, paying at the same time any fees which may be due. Students are however particularly requested to notice that the card which they obtain from the Dean must be lodged at once with the Secretary whether any fees are payable at the same time or not. Until this is done no credit will be given for attendance upon any course.

Students, whether composition or occasional, who have taken out all the classes for which they have paid, must understand that they have no further *right* to use the University Class-rooms, or Library, or the Common-room. But all Composition Students can obtain permission from the Dean to attend Tutorial Classes, or to use the Museums and Library. The Dean will issue cards to such students each Session, and the cards may be required to be produced at any time. It must be distinctly understood that such cards are held subject to the good conduct of the student, and that the Dean may at any time cancel any student's card.

Occasional students can receive similar cards on paying the terminal Membership Fee. Students and others desiring information on any subject connected with the Medical Curriculum can obtain the same by applying at the Dean's Office in the University Medical Buildings.

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## THE GENERAL HOSPITAL, BIRMINGHAM.

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### *Consulting Physicians—*

SIR WALTER FOSTER.  
SIR WILLOUGHBY WADE.

### *Physicians—*

DR. RICKARDS.  
DR. SAUNDBY.  
DR. SIMON.  
DR. STACEY WILSON.

### *Surgeons—*

MR. T. F. CHAVASSE.  
MR. GILBERT BARLING.  
MR. W. F. HASLAM.  
MR. G. HEATON.

### *Obstetric Officer—*

DR. EDWARD MALINS.

### *Ophthalmic Surgeon—*

MR. D. C. LLOYD-OWEN.

### *Assistant Physicians—*

DR. T. S. SHORT.  
DR. J. W. RUSSELL.

### *Assistant Surgeons—*

MR. A. LUCAS.  
MR. L. P. GAMGEE.

### *Assistant Obstetric Officer—*

DR. THOMAS WILSON.

### *Casualty Assistant Physicians—*

DR. J. R. CHARLES.  
DR. S. H. PERRY.

### *Surgical Casualty Officers—*

DR. A. DOUGLAS HEATH.  
DR. E. P. SATCHELL.

### *Anæsthetists—*

DR. SYDNEY HAYNES.  
DR. W. J. MCCARDIE.

### *Surgical Photographer and Radiographer—*

MR. J. HALL-EDWARDS.

### *Dental Surgeon—*

MR. DENCER WHITTLES.



Clinical Instruction (Lectures and Ward Classes) are given daily during the Session by one of the Physicians, Surgeons or Special Officers at 9.45 a.m.

Surgical operations are performed in the theatres each week-day morning.

Tutorial Classes are held during the Session—Medical by Dr. J. W. Russell, Surgical by Mr. A. Lucas, and Gynæcological by Dr. Thomas Wilson.

In addition, students attend the ordinary daily visits of the Staff to the Wards and Out-patient rooms.

Special departments are arranged as follows:—

Obstetric.....Wednesdays and Fridays at 9 a.m.

Ear and Throat.....Mondays at 9 a.m.

Skin .....Thursdays at 9 a.m.

**PATHOLOGY.**—A class is held by the Pathologist in Morbid Anatomy, on Fridays, at 2 o'clock, and post-mortem demonstrations take place at 11 a.m. daily.

## THE QUEEN'S HOSPITAL, BIRMINGHAM.

### *Consulting Physicians—*

SIR JAMES SAWYER.

DR. SUCKLING.

### *Physicians—*

DR. CARTER.

DR. FOXWELL.

DR. KAUFFMANN.

### *Consulting Surgeons—*

MR. FURNEAUX JORDAN.

MR. J. ST. S. WILDERS.

### *Surgeons—*

MR. BENNETT MAY.

MR. JORDAN LLOYD.

MR. MARSH.

### *Obstetric Officer—*

DR. PURSLOW.

*Ophthalmic Surgeon—*

MR. PRIESTLEY SMITH.

*Physician to Out-Patients and Pathologist—*

DR. DOUGLAS STANLEY.

*Surgeons to Out-Patients—*

MR. J. T. J. MORRISON.

MR. J. H. CLAYTON.

MR. C. LEEDHAM-GREEN.

*Assistant Ophthalmic Surgeon—*

MR. W. ALLPORT.

**Days of Attendance for Out-Patients (9 a.m.)***Monday.*—Dr. Kauffmann, Mr. May, and Dr. Purslow.*Tuesday.*—Dr. Stanley, Mr. Lloyd, Mr. Priestley Smith, and Mr. Allport.*Wednesday.*—Dr. Foxwell, Dr. Stanley, Mr. Marsh, and Mr. Leedham-Green.*Thursday.*—Dr. Carter, Dr. Kauffmann, Dr. Purslow, and Mr. Morrison.*Friday.*—Dr. Stanley, Mr. Priestley Smith, Mr. Clayton, and Mr. Allport.

Casualty patients are attended on Tuesday and Friday by Mr. Morrison; Wednesday and Saturday by Mr. Clayton; and on Monday and Thursday by Mr. Leedham-Green.

**Clinical Instruction.**

Throughout the academical year Clinical Instruction is given daily in the wards by one of the Physicians, Surgeons, or Special Officers, at 9.30 a.m. "Practice" may be seen daily in the Medical and Surgical Wards and Out-patient rooms. Surgical operations are performed on Wednesday, Thursday, Friday, and Saturday Mornings.

The Obstetric Department is under the charge of Dr. PURSLOW, and the Ophthalmic under Mr. PRIESTLEY SMITH. Demonstrations on recent specimens of Morbid Anatomy are given by Dr. STANLEY at 10.30 on Monday mornings.

Tutorial Classes are held throughout the Session—Medical by Dr. DOUGLAS STANLEY; Surgical by Mr. MORRISON, Mr. CLAYTON, and Mr. LEEDHAM-GREEN.

## THE GENERAL AND QUEEN'S HOSPITALS, BIRMINGHAM.

The Practices of these Hospitals are amalgamated for the purpose of Clinical Instruction under the direction of the Birmingham Clinical Board by whom all Schedules will be signed and all examinations conducted.

The Hospitals have a total of upwards of 400 beds. 6,000 In-patients and 80,000 Out-patients are treated annually.

Practical instruction is given at the Hospitals in the use of the Microscope, Laryngoscope, Ophthalmoscope, Surgical Appliances, and in Anæsthetics; also in Case-taking, and Bandaging, with Minor Surgery, and the art of Prescribing.

### Appointments open to Past Students.

#### At the GENERAL HOSPITAL.

Two Resident Medical Officers—Salary £70 a year.  
A degree in Medicine is necessary.

One Resident Surgical Officer—Salary £100 a year.

One Resident Pathologist—Salary £100 a year.

Two non-resident Casualty Assistant Physicians—  
Salary £50 a year.

Two non-resident Surgical Casualty Officers—Salary  
£50 a year.

Two non-resident Anæsthetists—Salary £50 a year.

Four House Surgeons—office tenable for six months,  
without salary.

Two Assistant House Physicians, tenable for six  
months, without salary.

One Resident Medical Officer at the Jaffray Hospital—  
Salary £150 a year.

One Resident Assistant at the Jaffray Hospital (post  
vacant early in April, July, October and  
January—tenable for three months).

## At the QUEEN'S HOSPITAL.

Three House Physicians (posts vacant in February, May and November, tenable for twelve months, at a salary of £50).

Three House Surgeons (posts vacant in February, May and November, tenable for twelve months, at a salary of £50).

One Obstetric and Ophthalmic House Surgeon (post vacant in May and November, tenable for six months). Salary £20, with board and lodgings, &c.

One Resident Dresser (post vacant on the first day of January, April, July, and October, tenable for three months). Candidates must previously have attended all their Lectures, &c., and need not be qualified.

## Regulations

*For the appointments of Resident Clinical Assistant at the Jaffray Hospital and Resident Dresser at the Queen's Hospital.*

These posts are awarded by examination.

The Examinations are only open to students taking out the whole of their clinical course at the School of Medicine of the University of Birmingham.

Students before competing must have attended all their Lectures at the University, and be certified for at least three months' in-patient clerking and three months' in-patient dressing, but they must not have exceeded the limit of the five years' curriculum. The possession of a recently-obtained qualification is not a bar to the holding of either of these appointments.

## Clinical Prizes.

*The following Prizes will be given annually.*

Senior Medical Prize, for students *during* their

"final" year, to the value of	...	...	£5	5s
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Senior Surgical Prize, ditto	...	...	...	£5	5s.
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Junior Medical Prize, for students <i>before</i> the commencement of their "final" year, to the value of       ...       ...       ...       ...       ...	£3 3s.
Junior Surgical Prize, ditto       ...       ...       ...	£3 3s.
Midwifery Prize, for students <i>during</i> their "final" year, to the value of       ...       ...	£4 4s.

These Prizes are awarded at the end of the Summer Session, and are open to students registered by the Clinical Board, who have attended not less than one Six Months' Course of Medical or Surgical Lectures at the University.

For the Senior Medical Prize, every candidate must produce a certificate of having held the office of Clinical Clerk in either the General or the Queen's Hospital for a period of *six* months; and must deliver to the examiners notes of *four* medical cases which have been personally observed and reported by him during his clerkship, the same to be certified to by the initials of the Physician under whose care the cases were placed. The examination will include a paper of *four* questions on the Principles and Practice of Medicine; a written diagnosis of *two* living cases, with grounds for the same; together with such additional evidence of a practical knowledge of Medicine as the examiners for the time being shall require.

For the Junior Medical Prize, every candidate must produce a certificate of having held the office of Clinical Clerk in either the General or the Queen's Hospital for a period of *three* months. The examination will include a paper of *four* questions on the Principles of Medicine; together with such evidence of a practical knowledge of the methods of physical examination, and of the names, uses, and methods of employment of common drugs, remedies, instruments, and apparatus, as the examiners for the time being shall require.



For the Senior Surgical Prize, every candidate must produce a certificate of having held the office of Surgical Dresser in either the General or Queen's Hospital for a period of *six* months; and must deliver to the examiners notes of *four* surgical cases which have been personally observed and reported by him during his dressership, the same to be certified to by the initials of the Surgeon under whose care the cases were placed. The examination will include a paper of *four* questions on the Principles and Practice of Surgery; the written diagnosis of *two* living cases, with grounds for the same; together with such additional evidence of a practical knowledge of Surgery as the examiners for the time being shall require.

For the Junior Surgical Prize, every candidate must produce a certificate of having held the office of Surgical Dresser in the General or Queen's Hospital for a period of *three* months. The examination will include a paper of *four* questions on the Principles of Surgery; together with such evidence of the names, uses, and methods of employment of common surgical instruments, bandages, and apparatus, as the examiners for the time being shall require.

For the Midwifery Prize every candidate must produce a certificate of having personally attended at least *ten* cases of Midwifery, and also a certificate of having attended the Out-patient Gynæcological Department at either the General or the Queen's Hospital for *three* months. The examination will include a paper of *two* questions on Diseases peculiar to Women, and *two* questions on the Principles and Practice of Midwifery; together with a practical examination of such a kind as the examiner for the time being shall determine.

Notice of intention to compete for the above Prizes must be communicated to one of the Honorary Secretaries of the Clinical Board at least *seven days* before the day of examination.

In no case will any Prize be awarded unless at least *seventy per cent.* of the total possible number of marks be obtained.



A professional qualification obtained during the Summer Session *immediately* preceding these examinations does not—*per se*—disqualify a candidate.

### Scale of Hospital Fees.

Fee for attendance for the full period required by the various examining bodies on the Medical and Surgical Practice and on the Clinical Lectures at both Hospitals ... .. £42

N.B.—This payment can be made in two instalments of £22 10s. each—the first on entrance at Hospital and the second at the commencement of the following year.

#### FEES FOR BOTH MEDICAL AND SURGICAL PRACTICE.

One Year's Attendance	...	...	...	£22 10s.
Six Months' „	...	...	...	£14.
Three Months' „	...	...	...	£10.

#### FEES FOR EITHER MEDICAL OR SURGICAL PRACTICE.

One Year's Attendance	...	...	...	£11 11s.
Six Months' „	...	...	...	£7.
Three Months' „	...	...	...	£5.

### Regulations.

1. The arrangements for Clinical Teaching are, as far as possible, conducted at both Hospitals on the same plan.

2. The recognised hours for Hospital attendance of students are from 9 a.m. to 1 p.m. daily.

3. The Teaching provided consists of :

- 1, Clinical Lectures in the theatre or lecture rooms ;
- 2, Clinical Instruction in the Wards ; 3, Tutorial Classes ; 4, Pathological Demonstrations.

The first two forms are given by the Members of the Honorary Staffs, in such order as they may arrange among themselves; the third, or Tutorial Classes are conducted by Special Tutors selected for that duty.

4. Clinical Instruction is given in the Medical or Surgical Wards daily, but not during the hour set apart for the Clinical Lectures.

5. Registers of attendance on Clinical Lectures and Tutorial and Ward Classes are kept. Cards are supplied to Final year students, on which each individual attendance will be certified by the teacher.

6. During the First year of the Medical Curriculum, attendance at Hospital is not recognised.

During the Second year of the Medical Curriculum (First year at Hospital) students must attend a Surgical Tutorial Class once a week. [This course is not compulsory on Candidates for the Diplomas of the English and Scotch Conjoint Boards, and will, under no circumstances, be reckoned as one of the years required by the Schedules of the above-mentioned bodies; all students are, however, strongly advised to attend this course during this year.]

During the Third year of the Medical Curriculum (Second year at Hospital) students must attend :

*a*, Clinical Lectures on Surgery; *b*, Medical and Surgical Ward Classes; *c*, Surgical Dressing (including three months Out-Patient and three months In-Patient Dressing); *d*, Medical Tutorial Classes. N.B.—These must be attended for three months before In-Patient Dressing is commenced.

(No student will obtain credit for this year of Hospital work unless he has previously passed his Anatomical and Physiological Examinations.)

During the Fourth year of the Medical Curriculum (Third year at Hospital) students should attend :

*a*, Clinical Lectures on Medicine; *b*, Medical and Surgical Ward Classes; *c*, Clinical Gynæcology; *d*, Post-mortem Clerking. The student must also attend Post-mortem Examinations and Demonstrations during the year. *e*, Medical Clinical Clerking for six months.

During the Fifth year of the Medical Curriculum (Fourth year at Hospital) students should attend :

- \* *a*, Clinical Instruction in Medicine and Surgery (during this year students are at liberty to attend these subjects at either Hospital, *vide* Reg. 3, p. 370); *b*, Clinical Ophthalmology (three months); *c*, Vaccination; *d*, Fever Hospital (three months); \* *e*, Lunatic Asylum (three months); *f*, Clinical Midwifery (twenty cases); *g*, Gynæcological Clerking (three months); *h*, Instruction in Anæsthetics, consisting of attendance at three Lectures and the personal administration of Anæsthetics in ten cases.

7. Students holding the appointments of Medical Clinical Clerk, or Surgical Dresser, are exempt from Ward Classes in Medicine and Surgery on the days on which their services are required by the Officer under whom they are working.

8. The following Syllabus of Instruction is followed in the Tutorial Classes for Elementary Medicine and Surgery :

MEDICINE : Physical Examination. *Winter*—1, Temperature ; 2, Integumentary System ; 3, Circulatory System ; 4, Respiratory System ; 5, Alimentary System. *Summer*—6, Nervous System ; 7, Urinary System ; 8, The use of the Ophthalmoscope, Laryngoscope, and Aural Speculum.

SURGERY : *Winter*—1, Bandaging ; 2, Strapping ; 3, Application of Splints ; 4, Minor Injuries ; 5, Wound Dressing and Wound Treatment ; 6, Hæmorrhage, Hæmostasis, Tourniquets ; 7, Artificial Respiration. *Summer*—8, Minor Operations : Catheterisation, Plugging the Nares, Hypodermic Injection, Removal of Foreign Bodies from the Eye, Ear, and Œsophagus ; 9, Shock, Fainting, Stings, Leeching, Counter-irritation ; 10, Surface Landmarks and Guides.

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\* The subjects *a* and *e* must be attended during the final year.

### General Regulations.

1. Every student is required to register his name for Hospital Practice within fifteen days of the commencement of the Winter Session. (Due notice of the time and place for such registration will be posted in the Hall of the University and in the General and Queen's Hospitals.)

2. Clinical fees must be paid to Mr. W. F. Haslam, 54, Newhall Street, previously to or at the time of registration, who will give all information relating to Hospital Practice, and sign schedules, which must be left *at least three days* before they are required.

3. Students must attend twelve months alternately at the General and Queen's Hospitals, as directed at the time of registration, but during their "final" year they may attend at either or both Hospitals.

4. Students who enter for a term of six months or less may choose which Hospital they will attend.

5. All students registering for Hospital Practice are required to attend at least *two-thirds* of the Classes for which they register.

6. Students referred at their Final Examinations must register with the Hon. Secretary of the Clinical Board for any further attendance they may require.

7. Not more than two Dressers and two Clerks are assigned at the same time to each Surgeon and Physician respectively.

### Midwifery Regulations.

1. Before attending practical midwifery, students shall have passed their Anatomical and Physiological Examinations.

2. They shall conform to the Queen's Hospital Bye-laws which relate to the work of its Midwifery Department.

3. They shall apply in the first place to the Secretary of the Clinical Board, who will furnish them with a "Clinical Midwifery Card," which must be signed by the

Obstetric Surgeon on the completion of the duties, and returned.

4. They shall not be engaged in Surgical Dressing, Post-mortem, or Dissecting Room work during the time of their attendance.

By order of the Birmingham Clinical Board,

BENNETT MAY, F.R.C.S., *President*.

W. F. HASLAM, F.R.C.S.     }  
O. J. KAUFFMANN, M.D.     } *Hon. Secs.*

## ASSOCIATED HOSPITALS.

The undermentioned Institutions are open to the students of the University free (with the exception of the City Fever Hospital, the Ear and Throat Hospital, and the City Asylum), under the following regulations, which have been approved by the Council.

1. That it be recognised that students attending such Hospitals do so upon the understanding that, except in the case of the City Fever Hospital and the City Asylum (at which, by the regulations of various Licensing Bodies, three months' attendance is required), such attendance is in no way to supersede or be considered as equivalent to attendance at the General and Queen's Hospitals.

2. That students who have diligently attended Courses at such Hospitals be, on the recommendation of the staff of any such Hospital, awarded special certificates, such certificates to be signed by the Chairman and Secretary (or other official) of the Medical Board of such Hospital, and countersigned by the Dean on the part of the University.

**The City Fever Hospital, Lodge Road.**

*Medical Superintendent :*

EUGENE CHATELIER, M.B., C.M. (Edin.)

This Institution is recognised by all the Licensing Bodies as a Fever Hospital at which attendances may be made.



The following Regulations have to be observed :—

1. Every student while within the gates of the Hospital shall be subject to the control of the Medical Superintendent, who has authority to suspend him from further attendance in case of breach of discipline.

2. He shall strictly adhere to the regulations made from time to time with regard to disinfection.

3. He shall not visit any ward except in the company of the Medical Superintendent or his deputy.

4. A register shall be kept at the Hospital, in which shall be entered the name of every student and the number of his attendances.

5. The minimum duration of any course of instruction shall be three months, the hours of attendance to be fixed by the Medical Superintendent.

6. A certificate, to be signed by the Medical Superintendent, shall be granted to each student when he shall have satisfactorily completed his course of study.

7. The fee for each course is *Two Guineas* for the first three months, and *One Guinea* for each additional month or part of a month, payable in advance to the Medical Superintendent.

8. These rules shall apply equally to legally qualified medical men, who may desire to attend the Hospital for the purpose of clinical instruction.

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### The City Asylum, Winson Green.

#### *Medical Superintendent :*

E. B. WHITCOMBE, M.Sc., M.B., Ch.B., M.R.C.S.

This Institution is recognised by all the Licensing Bodies as a Hospital at which attendance may be made in the subject of Mental Disease. By the regulations of the University of London and other Bodies, such attendance may count towards the requisite period of Clinical study. Courses of instruction are given in the months of April, May and June, and October, November and December, commencing on the first Saturday in April and October.



A Special Fee of £3 3s. has to be paid to Mr. Whitcombe, to whom application must be made for Rules, &c., as to attendance.

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**Birmingham and Midland Eye Hospital.**

*Honorary Consulting Physician :*

R. SAUNDBY, M.D., F.R.C.P., LL.D.

*Honorary Consulting Surgeons :*

E. CHESSHIRE, F.R.C.S.

D. C. LLOYD-OWEN, M.B., Ch.B. F.R.C.S.I.

*Surgeons :*

H. EALES, M.R.C.S.

E. W. WOOD-WHITE, B.A., M.D., B.Ch.

J. JAMESON EVANS, M.B., M.C., F.R.C.S.

*Dental Surgeon :*

W. T. MADIN, L.D.S.

*Anæsthetist :*

S. W. HAYNES, M.D., Edin.

This Hospital possesses 105 beds, and there is an average daily attendance of out-patients of 205.

This Institution is recognised by Universities and the Royal College of Surgeons, England, and Royal College of Physicians, London, as an Ophthalmic Hospital at which clinical instruction in Ophthalmology may be received. Students attending for a period of three months will be granted Certificates which will qualify for the University and Conjoint Board Examinations.

*Days of Attendance :*

Mr. EALES - - - Tuesday and Friday.

Mr. WOOD-WHITE - Monday and Thursday.

Mr. JAMESON EVANS - Wednesday and Saturday.

Out-patients are seen daily at 9 a.m.

Operations daily at 11 a.m.

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The Royal Orthopædic and Spinal Hospital.

*Honorary Consulting Physician:*

C. W. SUCKLING, M.D., M.R.C.P.

*Honorary Consulting Surgeons:*

W. C. FREER, F.R.C.S.

CHARLES WARDEN, M.D., F.R.C.S., Edin.

*Surgeons:*

WILLIAM THOMAS, M.B., F.R.C.S. (*Secretary to the Medical Committee*).

AUGUSTUS CLAY, M.R.C.S.

WM. EDWARD BENNETT, M.B., Ch.B., F.R.C.S.

*Assistant Surgeon:*

E. LUKE FREER, M.R.C.S.

*Anæsthetist:*

WALTER R. JORDAN, M.D., Lond.

Accommodation for 30 In-patients.

*Days of Attendance.*

Mr. WM. THOMAS - Monday and Friday, at 2.30 p.m.

Mr. AUGUSTUS CLAY Thursday, at 3.

Mr. W. E. BENNETT Wednesday and Saturday, at 10 a.m.

Mr. E. LUKE FREER Tuesday, at 3.

Operations, Tuesday, at 12.

*Clinical Assistants* are appointed for three months from third year students. A Certificate will be granted to each student who satisfactorily performs the duties of the office.

Further particulars may be obtained from the Secretary to the Medical Committee, 9, Great Charles Street, from 3 to 5 p.m.

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# Birmingham and Midland Ear and Throat Hospital.

## *Honorary Consulting Physician :*

Sir WALTER FOSTER, Kt., M.D., F.R.C.P., D.C.L., M.P.

## *Honorary Consulting Surgeons :*

JOHN ST. S. WILDERS, M.R.C.S. (Eng.)

CHARLES WARDEN, M.D., F.R.C.S. (Edin.)

## *Surgeons :*

WRIGHT WILSON, F.R.C.S. (Edin.)

C. J. LEWIS, M.D. (Brux.)

WILLIAM LAMB, M.D., C.M., M.R.C.P. (Lond.)

## *Honorary Assistant Surgeon :*

WILFRID GLEGG, M.D., C.M., M.R.C.P. (Edin.)

## *Hon. Secretary Medical Board :*

WILFRID GLEGG, 85, Cornwall Street.

## *Days of Attendance :*

Mr. WRIGHT WILSON - - Wednesday, 9.30 to 11 a.m.

Dr. LEWIS - - - - - Thursday, 9.30 to 11 a.m.

Dr. LAMB - - - - - Monday, 9.30 to 11 a.m.

Dr. GLEGG - - - - - Tuesday and Friday, 9.30  
to 11 a.m.

Patients are admitted at the side entrance in Barwick Street, daily from 9.30 a.m. to 11 a.m.

The Hospital has 31 Beds in occupation.

A Resident House Surgeon is appointed by the Medical Sub-Committee, subject to the approval of the Committee, every six months, at a salary at the rate of £70 per annum. He may be re-elected for a further period of six months. Rooms, board and washing are provided in the Hospital.

Candidates for the post must possess a registered qualification in Medicine and Surgery, and will be required to devote their whole time to the service of the Hospital. There is ample time for reading. Further particulars may be obtained from the Secretary of the Hospital, 109, Edmund Street.

Practical demonstrations and instruction are given to Practitioners and Medical Students from 9.30 to 12 a.m.

Fees for attending the Practice of the Hospital, one month one guinea, three months two guineas.

For further particulars apply to Dr. Glegg, Honorary Secretary to the Medical Committee.

NOTE.—Students desirous of attending at any of these Institutions should communicate with the Honorary Secretary to the Medical Board of the Hospital, who will afford him all the information which he may require.

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## LIBRARY OF THE BIRMINGHAM MEDICAL INSTITUTE.

By the courtesy of the Committee of the Medical Institute, students of the Faculty of Medicine are admitted to read in the Library of the Institute under the following conditions.

1. Admission is confined to—

(a) 3rd, 4th, and 5th years' students.

(b) 1st and 2nd years' students reading for higher examinations.

(c) Sons of Members of the Institute, of any year, whether reading for higher examinations or not.

Classes *a* and *b* must apply to the Dean of the Medical Faculty for a card of recommendation, which they must send, together with their letter of application, to the Hon. Secs. of the Institute. Class *c* must apply direct to the Hon. Secs.

2. Students are only admitted to the Library Hall, and *not* to the Reading Room or the Smoking Room.

3. It is understood that the Hall is not to be used for the reading of text-books.

4. Each student will receive a printed ticket of admission from the Librarian. He must show this whenever required, and must get it renewed every year.

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## VACCINATION.

Dr. E. ROBINSON, 213, Bristol Road,  
*Public Vaccinator.*

**Birmingham Teaching Station at Priory Rooms**  
(Opposite Fire Station).

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*Regulations according to the Instructions of the Local  
Government Board for 1902—1903.*

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THREE COURSES OF INSTRUCTION WILL BE GIVEN :

1st.—Commencing the second Monday in October.

2nd.—Commencing the second Monday in January.

3rd.—Commencing the second Monday in May.

An attendance book is provided, wherein every attendance is registered by the signature of the pupil, with other details.

The course of instruction consists of at least six demonstrations and addresses, and it is requisite that the pupil attend during six consecutive weeks.

The Class commences punctually at 1.30 p.m. each day, at which time the Register will be open.

FEE: £1 11s. 6d., payable to Dr. ROBINSON, on entrance.

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## REGULATIONS FOR DEGREES IN DENTISTRY.

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1. The Degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.).

2. All candidates for these Degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees.

3. The Degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a License in Dental Surgery from some body legally entitled to confer such qualification. The candidate is not eligible for the Degree until a period of twelve months has elapsed from the passing of his examination for the License in Dental Surgery. Of this period at least six months must be spent in the Dental Department of a General Hospital approved by the University.

4. A. In addition to the License in Dental Surgery the candidate must produce evidence that he has attended the Courses required by Medical Students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees :—

- (a) Chemistry, and Practical Chemistry.
- (b) Physics, and Practical Physics.
- (c) Comparative Anatomy.
- (d) Anatomy, and Practical Anatomy.
- (e) Physiology, and Practical Physiology.

B. That he has attended the following Courses, and passed the class examinations held in each of these subjects.

- (f) One Course of Lectures on Medicine.
- (g) One Course of Lectures on Surgery.
- (h) Special Courses of Lectures on the Surgery and Medicine of the Mouth.
- (i) Pathology and Bacteriology.

C. That he has attended Courses, and passed the class examinations in :—

- (k) Dental Histology and Patho-Histology.
- (l) Comparative Dental Anatomy.
- (m) Dental Surgery and Prosthetic Dentistry.



*D.* That he has received instruction in the Clinical Examination of living cases at the Dental Department of a General Hospital for a period of not less than six months.

5. The Final Examination will deal with the subjects in Classes *C.* and *D.*

6. On the expiration of twelve months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery.

7. For this Degree candidates will be required to submit a Thesis containing original work and investigations in some subject connected with Dentistry, which Thesis shall be submitted to examiners to be nominated by the Dental Advisory Board. The Degree will be awarded or withheld according to the report of these examiners.

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The teaching of Dentistry is undertaken by the University, acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board.

The Dental Museum contains a large collection of Specimens, arranged particularly with a view to the teaching of Dental Students.

An Entrance Scholarship, value £37 10s., is awarded annually at the commencement of the Winter Session.

The Dental Hospital is situated near the University, and is open daily (Sundays excepted). A large number of patients are treated there annually.

The Hospital affords every opportunity to the students for acquiring the highest practical knowledge of the Dental art. A large conservancy room has recently been erected with accommodation for twenty chairs. A Mechanical Work-room has been opened, fitted with a view to the practical teaching of crown and bridge work and the manufacture of porcelain continuous gum work, with the latest developments of modern Dentistry. Demon-

strations are given daily by the officials in Fillings of all kinds, including the use of soft and cohesive gold, the application of the rubber dam, and the various forms of plastic fillings.

The General and Queen's Hospitals offer every advantage for the study of general Surgery and Medicine, the arrangements for which are carried out under the direction of the Birmingham Clinical Board (see page 363).

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## DEPARTMENT OF DENTISTRY.

## Syllabus of Lecture Courses.

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I. *SPECIAL SUBJECTS.**(a) Dental Surgery and Pathology.*

*Lecturer:* F. E. HUXLEY, M.D.S., M.R.C.S., L.D.S., Edin.

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Pathology and treatment of inflammation, with special reference to the mouth.

Necrosis and fractures of the jaws.

Irregularities of the teeth.

Odontomes and tumours of parts adjacent to the teeth.

Caries and other diseases of the teeth.

The micro-organisms of the mouth.

Neuralgias.

Cleft-palate and obturators.

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*(b) Practical Dental Surgery.*

*Lecturer:* W. T. MADIN, L.D.S., Eng.

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Instruments.

Management of the Surgery.

Hygiene.

Systematic examination of the mouth.

Chart and case records.

Pain—Diagnosis of cause. Alleviation.

Composition of filling materials.

Conservative treatment of the teeth.

Fillings—Preparation of Cavities, Wedges, Devitalization, Sensitive Dentine, Root filling.

Selection of filling material—Porcelain Inlays, Gold, Amalgam, Gutta Percha, Cement, Combination Fillings.

Dental Drugs and their uses.

Exclusion of saliva.

Crowns, selection and adaptation.

Extraction of teeth: (i.) Without Anæsthetics;  
(ii.) under local and general Anæsthetics.

### (c) Dental Anatomy and Physiology.

HUMAN AND COMPARATIVE.

*Lecturer:* JOHN HUMPHREYS, M.D.S., L.D.S.I., F.L.S.

The method and use of the study of odontology.

The general and minute structure and composition of the teeth, and their modifications in fishes, reptiles, and mammals.

The arrangement and uses of the teeth of man and typical animals.

Structure of the gum, periosteum, and dental pulp.

Development of the teeth.

Development of the jaws, alveoli, &c., and their anatomical relations.

Mastication and the oral secretions.

This course is fully illustrated by the large collection of skulls, teeth, &c., contained in the Museum, as also by microscopic preparations and drawings, and a series of lantern slides.

### (d) Dental Histology and Patho-Histology.

*Lecturer:* DENCER WHITTLES, B.D.S., L.D.S., Eng.

The course includes the various methods used in preparing Microscopical Sections of hard and soft tissues in and in relation to the oral cavity.

#### HISTOLOGICAL:—

The Dental Tissues, including the various forms of Enamel, Dentine, Cementum, Osteo-Dentine, Vaso-Dentine, Plici-Dentine, &c.

The Tooth Papilla.

The Muco-periosteum and Periodontal Membrane.

Development of the Teeth in Fish, Reptiles, and Mammals.

Calcification of Dental Tissues :

The Enamel Organ, the Dentine Organ, the Cementum Organ, etc., etc.

**PATHOLOGICAL :—**

Caries of Enamel, Dentine and Cementum.

Muco-Periosteum. Atrophic and hypertrophic conditions.

The Tooth Papilla :

Inflammation.

Various forms of Degeneration.

Periodontal Membranes. Various Modified Conditions.

Tumours growing in connection with the Oral Cavity, &c., &c.

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**(e) Dental Mechanics.**

*Lecturer : A. E. DONAGAN, L.D.S., Edin., M.A., Cantab.*

Introduction and general principles of Prosthetic Dentistry.

Treatment of the mouth preparatory to the insertion of artificial dentures.

Materials used and methods employed in taking impressions of the mouth.

Casting in plaster and metal.

Methods of obtaining the correct articulation of the teeth.

Vulcanite work.

(a) The preparation of dental rubber.

(b) Artistic arrangement of teeth.

(c) Production of plates of equal thickness.

(d) Flasking, packing, and vulcanizing.

(e) Clasps and strengtheners.

(f) Methods of weighting lower dentures.

Plate and tube work.

Combination work.

Continuous gum work and section blocks.

Making and mounting springs and swivels.

Mechanical treatment of Dental Irregularities and Oral Deformities.

Varieties of crown and bridge work.

Mechanical treatment of Fractured Maxillæ.

The course will be fully illustrated by the exhibition of models, appliances, and diagrams.

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(f) Dental Metallurgy.

*Professor*: THOMAS TURNER, M.Sc., A.R.S.M., F.I.C.

*Demonstrator* :

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A Special Course of lectures is given on the above subject.

The Course treats of the physical and chemical properties of the metals as a class, and the preparation and properties of the principal metals and alloys used in Dentistry.

A Special Practical Class is held during the Summer Session to study the practical applications of Metallurgy to Dentistry. The class meets in the Metallurgical Laboratory.

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(g) Medical Diseases of the Mouth.

*Lecturer* : T. STACEY WILSON, M.D., M.R.C.P.

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Medicine in its relation to Dentistry.

I.—Constitutional tendencies, the recognition of which is of importance to the Dental Surgeon, *e.g.*, the nervous temperament, the phlegmatic temperament, &c.

II.—Diseases, local or general, which affect the integrity of the teeth.

(a) Diseases interfering with the Development of the Teeth :



- (1) By local interference with the nutrition of the growing teeth, *e.g.*, inflammations of the mouth, &c.
  - (2) By action through the nervous system, *e.g.*, Cretinism.
  - (3) By action on the general nutrition of the body and in other ways, *e.g.*, Fevers, Rickets, Scrofula, wasting diseases, &c.
- (b) Diseases interfering with the maintenance of the teeth :
- (1) By local interference with their nutrition, Alveolar inflammations, &c.
  - (2) By direct action upon the teeth—mechanically, *e.g.*, by tooth-grinding ; chemically, *e.g.*, by altering the alkalinity of the saliva, by acid eructations, &c.
  - (3) By constitutional action impairing their vitality.

Diseases interfering thus with the integrity of the teeth—Gout, Rheumatism, Dyspepsia, Influenza, &c.

III.—Morbid constitutional states which render ordinary dental operations unusually dangerous.

Hæmophilia—Cardiac Disease, &c.

IV.—Morbid constitutional states or local disease of the mouth resulting from disease of the teeth, *e.g.*, Dyspepsia, Pyæmia and Sapræmia, disturbances of the nervous system, Neuralgia, &c.

#### (h) Surgical Diseases of the Mouth.

*Lecturer* : FRANK MARSH, F.R.C.S.

Inflammation, Abscess, Ulceration, Caries, Necrosis. Alveolar and Antral Abscess.

Specific Diseases : Syphilis, Tubercle, Erysipelas, Cancrum Oris.

Closure of Jaws, Hæmorrhage, Diseases of Salivary Glands.

Congenital Defects : Fissures and Hypertrophies. Methods of closure or removal.

Tumours : Cysts, Classification and clinical features, Symptoms, Diagnosis and treatment of those growing in buccal cavity, and from the maxillary bones.

*(i) Dental Bacteriology.*

*Professor* : R. F. C. LEITH, M.Sc. ; M.B., B.Sc., M.A., F.R.C.P.E.

*Assistants* : JAMES MILLER, M.B., Ch.B., B.Sc., F.R.C.P. (Edin.),  
and C. LEEDHAM-GREEN, M.D., F.R.C.S., M.B., Ch.B.

This course begins about the middle of November and is continued daily at 1 o'clock for about a month. It consists of Lectures and lantern demonstrations upon the structure, classification, and function of micro-organisms, especially those relating to the mouth, gums, teeth, and throat. Due notice of the first meeting will be posted in the Medical and Dental Departments of the University

II. *GENERAL SUBJECTS.*

Anatomy, Practical Anatomy, Physiology, Practical Physiology, Chemistry, Practical Chemistry, Physics, Comparative Anatomy, Pathology, Bacteriology, Medicine, and Surgery. (See Faculty of Medicine).

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OPEN ENTRANCE SCHOLARSHIP FOR DENTAL STUDENTS.

- 1.—One will be offered annually of the value of £37 10s.
- 2.—It will be awarded to the student who, entering in October as a candidate for the Dental Degree, or having entered not earlier than the previous May, shall pass the best examination in the subjects studied during his apprenticeship.
- 3.—Candidates must be under the age of twenty-one years.
- 4.—Application for admission must be sent to the Dean of the Medical Faculty on or before October 3rd.

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**Text-books.**

The following text books must be purchased by Dental Students :—

- Dental Anatomy (Tomes).
  - Diseases and Injuries of the Teeth (Smale and Colyer).
  - Theory and Practice of Surgery (Walsham).
  - Dental Microscopy (Hopewell Smith).
  - Injuries and Surgical Diseases of the Face, Mouth, and Jaws (Marshall).
  - Mechanical Dentistry (Richardson).
  - Dental Metallurgy (Smith).
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## DENTAL TIME-TABLES.

FIRST YEAR TIME TABLE.						
SUBJECTS.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
WINTER SESSION.						
Chemistry Lectures .....	9.30	9.30	9.30	9.30	..	..
„ Practical .....	2.0	..	2.0	..	..	..
Anatomy Lectures.....	10.30	..	10.30	..	..	..
Practical Anatomy.....	..	..	(Daily.)		..	..
Physics :—						
‡Lectures .....	11.30	..	11.30	..	11.30	..
*Practical .....	..	..	..	..	2.0	..
Dental Metallurgy Lectures .....	4.0	..	..	..	..	..
Dental Hospital Demonstrations ..	..	4.0	4.0	4.0	4.0	9.0
Practical Dental Mechanics .....	(Daily at the Dental Hospital.)					
SUMMER SESSION.						
Chemistry :—						
*Lectures .....	9.30	..	9.30	..	9.30	..
Practical .....	2.0	2.0	2.0	2.0	..	..
Physics :—						
Lectures .....	..	9.30	..	9.30	..	..
*Practical .....	..	..	..	..	2.0	..
Practical Physiology .....	11.0	11.0	11.0	11.0	11.0	..
Dental Mechanics Lectures .....	..	4.0	..	..	..	..
Practical Dental Metallurgy .....	..	..	..	..	..	10.0
Practical Dental Mechanics .....	(Daily at the Dental Hospital.)					
Dental Hospital Demonstrations..	4.0	..	4.0	4.0	4.0	9.0

\* Not attended by students reading for L.D.S. ONLY.

‡ (Oct. to Dec.) attended by L.D.S. Students.

Students are requested to take notice that they are expected to attend at least two-thirds of the lectures of each course, and also the class examinations, and that the Schedules of those who do not observe these regulations will not be signed

SECOND YEAR TIME TABLE.						
SUBJECTS.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
WINTER SESSION.						
General or Queen's Hospital Practice ( <i>Students must attend three days a week</i> ).....	9.0	9.0	9.0	9.0	9.0	9.0
Dental Hospital Practice .....	9.0	9.0	9.0	9.0	9.0	9.0
Anatomy :—						
Lectures .....	12.0	12.0	12.0	12.0	..	..
Practical .....	..	..	(Daily.)		..	..
Physiology :—						
Lectures .....	..	10.30	10.30	10.30	10.30	..
Practical .....	..	2.30	..	..	..	..
*Comparative Anatomy :—						
*Lectures ..	4.0	..	4.0	..	..	..
*Practical .....	2.0	..	2.0	..	..	..
Dental Anatomy Lectures .....	..	..	..	..	4.0	..
Dental Surgery Lectures .....	..	..	..	4.0	..	..
Practical Dental Surgery Lectures	(Oct. to Dec.)		..	3.0	..	..
Dental Histology Lectures .....	(Jan. to Mar.)		..	3.0	..	..
SUMMER SESSION.						
Dental Hospital Practice .....	9.0	9.0	9.0	9.0	9.0	9.0
*Anatomy :—						
*Lectures .....	12.0	..	12.0	..	12.0	..
*Practical .....	..	..	(Daily.)		..	..
Physiology .....	..	3.0	..	3.0	..	..
Practical Dental Histology.....	..	2.0	..	..	4.0	..
Diseases of the Mouth (Surgical)..	..	..	4.0	..	..	..
"       "       " (Medical)..	(By arrangement.)					

\* Not attended by students reading for L. D. S. only.

THIRD YEAR TIME TABLE.						
SUBJECTS.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
WINTER SESSION.						
General or Queen's Hospital Practice ( <i>Students must attend three days a week</i> ) .....	9.0	9.0	9.0	9.0	9.0	9.0
Dental Hospital Practice.....	9.0	9.0	9.0	9.0	9.0	9.0
Medicine Lectures.....	..	3.0	3.0	..	3.0	..
Surgery Lectures .....	..	4.0	4.0	..	4.0	..
*Pathology and Bacteriology .....	1.0	1.0	1.0	1.0	1.0	..
Dental Bacteriology .....	(As arranged.)					
SUMMER SESSION.						
Dental Hospital Practice.....	9.0	9.0	9.0	9.0	9.0	9.0
*Practical Pathology .....	2.0	..	2.0	..	2.0	..

\* Not attended by students reading for L.D.S. ONLY.

## REGULATIONS RELATING TO THE DIPLOMA OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND IN DENTAL SURGERY.

Candidates who register as Dental Students after the 1st January, 1897, are required to pass three Examinations—the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination—and to produce the following Certificates before admission to the several Examinations:—

### PRELIMINARY SCIENCE EXAMINATION.

1. Of having received instruction, at an Institution recognised for the purpose, in Chemistry, Physics, and Practical Chemistry.

*This instruction may be taken prior to the Date of Registration as a Dental Student.*

### FIRST PROFESSIONAL EXAMINATION.

2. Of having been engaged, during a period of not less than three years, in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent Practitioner, or under the direction of the Superintendent of the Mechanical Department of a recognized Dental Hospital, where the arrangements for teaching Mechanical Dentistry are satisfactory to the Board of Examiners in Dental Surgery. In the case of qualified Surgeons, evidence of a period of not less than two instead of three years of such instruction will be sufficient.

*This instruction may be taken prior to the Date of Registration as a Dental Student.*

3. Of registration as a Dental Student by the General Medical Council, 299, Oxford Street, London, W.
4. Of having attended at a recognized Medical School:—
  - (a) A course of Lectures on Dental Metallurgy.
  - (b) A course of Practical Dental Metallurgy.



- (c) A course of Lectures on Dental Mechanics.
- (d) A course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns.

#### SECOND PROFESSIONAL EXAMINATION.

5. Of having been engaged during *four years* in the acquirement of professional knowledge, subsequently to the date of registration as a Dental Student.
6. Of having attended at a recognized Medical School :—
  - (a) A course of Dental Anatomy and Physiology.
  - (b) A separate course of Dental Histology, including the preparation of Microscopical Sections.
  - (c) A course of Dental Surgery.
  - (d) A separate course of Practical Dental Surgery.
  - (e) A course of not less than 5 Lectures on the Surgery of the Mouth.
  - \*(f) A course of Dental Bacteriology.
  - \*(g) A course of Dental Materia Medica.
7. Of having attended at a recognized Dental Hospital or in the Dental Department of a recognized general Hospital, the Practice of Dental Surgery during two years.
8. Of having attended at a recognized Medical School :—
  - (a) A course of Lectures on Anatomy.
  - (b) A course of Lectures on Physiology.
  - (c) A separate Practical Course of Physiology.
  - (d) A course of Lectures on Surgery.
  - (e) A course of Lectures on Medicine.

*Students are required to attend the Examinations which are held in the several Classes.*

9. Of having performed Dissections at a recognized Medical School during not less than 12 months.
10. Of having attended, at a recognized Hospital or Hospitals, the Practice of Surgery and Clinical Lectures on Surgery during two Winter Sessions.

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\* These certificates will only be required of students who enter at a recognized Dental Hospital and School on or after the 1st May, 1902.

11. Of being 21 years of age.

*The Certificates of professional study will be required to show that students have attended the courses of lectures, etc., to the satisfaction of their Teachers.*

*The Examinations held in the various classes are compulsory for all students.*

NOTE.—Professional study prior to the date of registration as a Dental Student is not recognized except in the case of Chemistry, Physics, and Practical Chemistry, and of instruction in the details of Mechanical Dentistry, and will not be counted under any circumstances in lieu of part of the four years' study subsequent to the date of registration as a Dental Student.

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## BIRMINGHAM DENTAL HOSPITAL,

71, NEWHALL STREET.

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 OPEN DAILY AT 9 A.M.
 

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**Admission.**—Students are admitted to this Hospital on the understanding that it is their intention to obtain the Dental Diploma of one of the Royal Colleges of Surgeons of the United Kingdom *cum curriculo*.

**Attendance.**—The Hospital is open daily at nine o'clock (Sundays excepted), and students must attend at that hour unless their attendance is required at one of the General Hospitals.

The Hospital must be attended for two years consecutively, irrespective of University vacations.

**Dresserships.**—Regular days will be appointed by the House Surgeon for each student to attend in the Extracting, Anæsthetic, and Conservancy Rooms. Cases for filling, and operating chairs will be allotted to students by the House Surgeon or the Dental Officers in attendance.

**Requirements of Curriculum.**—During the two years' attendance students will be required :—

- (a) To attend as dressers in the Extracting and Anæsthetic Rooms.
- (b) To perform filling and other conservative operations.
- (c) To treat at least four regulation cases mechanically.
- (d) To make and insert at least six dentures and at least eight crowns (six being collar).
- (e) To attend the Course of Demonstrations.

**Mechanical Department.**—This Department is open every afternoon (Saturdays and Sundays excepted) for making, under the supervision of a skilled teacher, dentures and regulating appliances. Students will be appointed to attend in rotation by the Senior Officer of the Department.

**Registration.**—Dental Students are required to register their names for Dental Hospital Practice on the first Tuesday in October, and the first Tuesday in April.

**Fees.**—For Dental Hospital Practice and Demonstrations, twenty guineas, payable to the Dean of the Dental Hospital, F. W. Richards, Esq., 54, Newhall Street.

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## DENTAL FEES.

The Dental student can enter either as a Composition or Occasional student, *i.e.*, he can pay his fees in two instalments or as he takes out each class. Composition students pay a MEMBERSHIP FEE of £3 3s., once for all, occasional students pay £1 1s. for each Winter Session, and 10s. 6d. for each Summer Session during which they may be in attendance upon lectures. The regulations in connection with the attendance of medical students (see p. 356) apply also to Dental students, whose composition fee, however, covers normally three and not five years.

COMPOSITION FEES.—The Composition Fee for the courses required for the L.D.S. of any of the Corporations *alone* is £60, that for the courses required for the L.D.S. and the degree in Dentistry of the University is £75, that for the L.D.S. in combination with the M.R.C.S. and L.R.C.P. is £85, and that for the M.B., Ch.B., and B.D.S., is £95. Each of these fees covers the cost of the courses given at the University for the qualifications indicated, but does not include incidental fees nor fees for Hospital teaching. Each of these Composition fees is payable in two instalments, one on entrance, the other at the commencement of the second year of study.

INCIDENTAL FEES.—These fees are intended to cover the cost of apparatus, material, &c., used in the various practical classes. They are, with the exception of the fee for dissecting (which is paid to the Professor of Anatomy), payable to the Secretary.

					£	s.	d.
Dissecting Room (each winter)	...	...	...	...	1	11	6
" " (each summer)	...	...	...	...	0	10	6
Practical Physiology	...	...	...	...	2	2	0
" Pathology...	...	...	...	...	1	11	6
Dental Histology	...	...	...	...	1	1	0

CLASS FEES.—Students wishing to do so can pay for each class as they take it, the following table showing the fees for each course.

						£	s.	d.
Anatomy and Practical Anatomy (each winter)	...	...	...	...	...	11	11	0
* " " " (one summer)	...	...	...	...	...	3	3	0
Physiology ...	...	...	...	...	...	6	6	0
" Practical	...	...	...	...	...	4	4	0
Chemistry ...	...	...	...	...	...	4	4	0
" Practical	...	...	...	...	...	3	3	0
*Elementary Biology	...	...	...	...	...	5	5	0
Physics ...	...	...	...	...	...	5	5	0
*Pathology ...	...	...	...	...	...	4	4	0
* " Practical	...	...	...	...	...	4	4	0
Bacteriology (special Dental)	...	...	...	...	...	1	1	0
Medicine ...	...	...	...	...	...	6	6	0
Surgery ...	...	...	...	...	...	6	6	0
Dental Anatomy ...	...	...	...	...	...	3	3	0
" Surgery	...	...	...	...	...	3	3	0
" Mechanics	...	...	...	...	...	2	2	0
" Metallurgy	...	...	...	...	...	2	2	0
" " Practical	...	...	...	...	...	2	2	0
Diseases of the Mouth ...	...	...	...	...	...	2	2	0
Dental Histology ...	...	...	...	...	...	2	2	0
Practical Dental Surgery ...	...	...	...	...	...	2	2	0

NOTE.—Subjects marked with an asterisk are *not* required by students only reading for the I.D.S. Composition students requiring to repeat a course will be charged a half-fee for the same. In the case of Practical Anatomy this will be £3 3s.

EXAMINATION FEES.—The fees payable before a student is admitted to any of the examinations are set down below. A student failing at any examination will be called upon to pay a half-fee when next presenting himself for the same examination.

						£	s.	d.
Matriculation ...	...	...	...	...	...	2	0	0
First Examination ...	...	...	...	...	...	5	0	0
Second Examination ...	...	...	...	...	...	5	0	0
Final Examination for B.D.S. ...	...	...	...	...	...	5	0	0
Examination for M.D.S. ...	...	...	...	...	...	10	0	0

For General Surgical Hospital Practice, Lectures, and Demonstrations :

SURGERY : Two Winters...	...	...	...	£10	10	0
,, One Winter ...	...	...	...	6	6	0

*Payable to W. F. Haslam, Esq., F.R.C.S., 54, Newhall Street.*

For the convenience of those desiring to ascertain the total cost of obtaining the License of Dentistry of the Royal College of Surgeons of England, and the Degree of Bachelor of Dental Surgery in the University, the following table has been drawn up. It presumes that the student enters by the Composition method and makes no allowance for failures at examinations. No allowance is made for the cost of books or instruments for private tuition (if necessary), or for the fee for apprenticeship.

		£	s.	d.	£	s.	d.
MATRICULATION	... ..	2	0	0			
					2	0	0
FIRST WINTER.—Membership Fee...	...	3	3	0			
Half Composition	...	37	10	0			
Dissections	...	1	11	6			
					42	4	6
FIRST SUMMER.—Dental Hospital...	...	21	0	0			
Practical Physiology	...	2	2	0			
Microscope	...	8	11	0			
					31	13	0
<i>First Examination. University</i>		5	0	0			
					5	0	0
<i>Prel. Sci. Exam. L.D.S.</i>	...	3	3	0			
					3	3	0
SECOND WINTER.—Half Composition	...	37	10	0			
General Hospital	...	10	10	0			
Dissections	...	1	11	6			
Dental Histology	...	1	1	0			
					50	12	6
SECOND SUMMER.—Dissections	...	0	10	6			
					0	10	6
<i>Second Examination, University</i>		5	0	0			
					5	0	0
<i>First Professional, L.D.S.</i>	...	2	2	0			
					2	2	0
THIRD SUMMER.—Practical Pathology	...	1	11	6			
Microscope	...	5	6	6			
<i>Final L.D.S.</i>	...	15	15	0			
					22	13	0
FOURTH YEAR.—General Hospital	...	6	6	0			
					6	6	0
<i>Final B.D.S. Examination</i>	...	5	0	0			
					5	0	0
					£176	4	6



**REGULATIONS AFFECTING PAST AND PRESENT  
STUDENTS OF THE BIRMINGHAM  
MEDICAL SCHOOL,**

**Approved by the University Council, 13th June, 1900.**

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That Past Students of the Birmingham Medical School who have taken out their whole course in Birmingham, and are duly qualified Medical Men, be permitted at any period during the five years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degrees of Bachelor of Medicine and Surgery.

**SUBJECTS FOR EXAMINATION.**

- (a) \*Medicine, including Therapeutics.
- (b) \*Surgery and Operative Surgery.
- (c) \*Midwifery and Gynæcology.
- (d) Pathology and Bacteriology.
- (e) Forensic Medicine and Toxicology.

\* This Examination will consist of three parts:—(1) written papers, (2) *vivâ voce*, (3) clinical.

That all present students of the School of Medicine who originally entered as first year students of the school, and have since regularly pursued their studies in the school, be permitted to present themselves for the examinations of the University without passing its matriculation examination, and without repeating any courses of lectures which they may already have taken out.

That all students of the School of Medicine falling under the above category who have passed any medical examinations in any British or Irish University be allowed to count such examination or examinations in lieu of the corresponding examination or examinations in the University of Birmingham, but that no such allowance be made in the case of students who have passed examinations conducted by licensing bodies other than Universities. Provided that in all cases it shall be essential that the student shall pass the Final Examination of the University of Birmingham.

**ORDINANCE CONCERNING PRIVILEGES OF PAST  
STUDENTS OF THE BIRMINGHAM  
DENTAL SCHOOL.**

**Approved by the University Council, 17th Nov., 1900.**

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That Past Students of the Birmingham Dental School (including those who qualify not later than the November, 1900 Examination of the Royal College of Surgeons of England) who have taken out their whole course in the Birmingham School, and are duly qualified and Registered Dental Surgeons, be permitted at any period during the five years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degree of Bachelor of Dental Surgery.

**SUBJECTS FOR EXAMINATION.**

- (a) The Surgery and Medicine of the Mouth.
- (b) Dental Bacteriology.
- (c) Dental Histology and Patho-Histology.
- (d) Comparative Dental Anatomy.
- (e) Dental Surgery and Prosthetic Dentistry.

*The Examination will be partly written, partly practical, and partly oral.*

# The British School of Malting and Brewing.

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## Board of Management.

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LAURENCE W. HODSON, Esq., *Chairman*.  
 THE PRINCIPAL OF THE UNIVERSITY.  
 THE VICE-PRINCIPAL OF THE UNIVERSITY.  
 FRANK WILSON, Esq.  
 W. GEOGHEGAN, Esq.  
 CORNELIUS O'SULLIVAN, Esq., F.R.S.  
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 Professor WINDLE.  
 The PROFESSOR OF PHYSICS.  
 The PROFESSOR OF CHEMISTRY.  
 The PROFESSOR OF BOTANY.  
 The PROFESSOR OF GEOLOGY.  
 The PROFESSOR OF ENGINEERING.  
 The PROFESSOR OF BACTERIOLOGY.  
 The PROFESSOR OF BREWING.

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*Director of the School:* Professor ADRIAN J. BROWN, M.Sc.,  
 F.I.C.

*Lecturer and Demonstrator:* THOMAS H. POPE, A.I.C.

## MALTING AND BREWING.

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### INTRODUCTION.

This department of the University is founded to encourage research in all branches of knowledge connected with the fermentation industries and to provide for students a systematic training in the scientific principles on which the practice of Malting, Brewing, and the kindred fermentation industries are based.

The necessity of scientific training as a requisite to modern advance in technology is day by day becoming better recognised by the manufacturers of this country, and in no branches of industry has this fact received fuller recognition than in those of Malting and Brewing. But previous to the founding of this School, educational opportunities, combining scientific teaching of University standing with a thorough training in technical principles, have been unattainable, except on the Continent, where the value of such a course of study has long been recognised. The University, through this School, now supplies the requirements of students in this country.

The general working of the School as at present developed is as follows :—

- (1) It provides a complete course of training in the principles of all subjects connected with Malting, Brewing and the fermentation industries generally. This course of study is called the Diploma Course, and students who follow it and duly satisfy their examiners obtain a Diploma in Brewing granted by the University.
- (2) It provides shorter courses of study for students not taking the Diploma Course.
- (3) It provides for and encourages research work in subjects connected with the fermentation industries.

Further information regarding the above will be found in this Syllabus under separate headings.

In the drawing up of the general curriculum of studies in this department the Council had the valuable assistance of the gentlemen whose names will be found in the list of Members of the Board of Management; and as they direct the operations of the School the Council feel sure that it will continue to be carried on in such a manner as fully to meet all requirements.

### I.—THE DIPLOMA COURSE OF STUDY.

The period at which most students enter for this course of study is at the close of an ordinary school education; therefore the subjects included in the first year's course, although determined mainly with a view to prepare for systematic technical training later on, are also selected to enable the students to benefit from the general advantages of a University education.

The complete Brewing Course lasts three years. In the first year Elementary Inorganic Chemistry, Physics, Botany, Mathematics, and Engineering Drawing are taken, with a modern language as an optional subject; but this course of study is subject to alteration according to the students' previous education.

The second year's course includes advanced Chemistry, both inorganic and organic, with an extended course of laboratory work, practical elementary Bacteriology, Engineering and Electrical Engineering, and a short course of lectures on Geology.

The studies arranged for the two years' courses are not technical, but are carried on under the professors of the special subjects, and are intended to thoroughly ground the students in the principles of the various sciences, so that when they enter the Brewing Laboratory in the third year they may be in a position to take full advantage of the training there and be able to grasp thoroughly the complicated scientific problems involved in the technology of the fermentation industries.



In the third year the students enter the Brewing Laboratory and devote their whole time to study there. Their course of training is very largely practical, the laboratory being specially fitted with modern apparatus for carrying on the course of instruction laid down in the syllabus, and during this technical training a special point is made of teaching students the application of scientific principles to the judgment and valuation of hops, barley, malt, and other materials used by brewers. During the working of the course lectures are given by the professor and his demonstrator, in which all the main points connected with brewing and kindred subjects are dealt with.

As the chief principles underlying the technology of Brewing are also comprehended in the kindred arts of Distilling and Vinegar-making, students of these subjects derive great advantage in following the course of instructions laid down.

### Diploma Regulations.

In order to obtain the Diploma in Brewing granted by the University, in the first place students are required to have attended regularly the full course of instruction in the pure sciences arranged, and to have passed a satisfactory examination in each ; but as the Board recognise that there may be students already qualified by previous training, they reserve the right of waiving all or part of these studies and examinations in special cases. In the second place all students must have attended lectures and have worked through a practical course in the Brewing Laboratory, and have passed satisfactorily a practical and written examination in the technology of Brewing. According to the result of this examination and the general character of the work done throughout the course, to which great importance is attached, a Diploma in Brewing is granted by the Council.

The possession of such a diploma is evidence that the owner has obtained a general scientific training, and such special knowledge as will enable him to cope with



the important technical problems constantly arising in the brewing and malting trades.

Before admission to the Diploma Examination, each candidate is required to present to the Registrar a schedule of qualification certifying that he has attended the lectures, classes, &c., laboratory instruction prescribed for that examination to the satisfaction of the Professors and other teachers concerned, and that he has passed such class examinations and performed such other exercises as his teachers may prescribe in connection with their courses, to the satisfaction of the Faculty ; or submit a certificate, signed by the Chairman of the Board, to the effect that he has been excused all or any of his courses of study through being already qualified by previous training.

Fee for the Diploma Examination, £2.

### Abridged Syllabus of Work for Diploma Students.

**BARLEY.**—The general character of the fully developed plant of the two and six rowed species. The barley corn compared morphologically with wheat and other cereals. Microscopic study of the minute structure of the barley corn. Barley starch, and starch from other sources. Practical study of different kinds of barley. Quality and condition. Commercial valuation. Vitality as determined by germinator. Natural and excess moisture in barley.

**MALTING.**—Water absorbed during steeping. General study of barley during germination and growth. Microscopic changes in embryo and endosperm. Growth and nutrition of embryo separated from endosperm. Action of cytase and diastase. Respiration during germination. Effect of heat during drying. Yield of malt from barley. The physical examination of malt. Special methods employed in the chemical examination of malt including determinations of extract, moisture, acid, ready formed carbo-hydrates, soluble uncoagulable albuminoids, and diastatic power.

**THE MASHING PROCESS.**—A preliminary study of the carbo-hydrates introducing and familiarising the student with the special methods employed in work connected with this subject. Transformation of starch by acids. Transformation of starch by diastase. Influence of temperature on transformation. The products of transformation. Temperature and the mashing of malt. Mashing with raw grain. Mixing heats, and temperature due to hydration. Inversion of cane sugar by acids and yeast. Analysis of worts and beers. Analysis of sugars used by brewers. Raw and treated grain; chemical examination and extract. Testing of brewing materials for arsenic.

**FERMENTATION.**—*Part 1.*—The physiology of fermentation change. Nutrition of yeast. Products of alcoholic fermentation. Aërobic and anaërobic conditions. The enzymes of yeast and their actions. Autodigestion of yeast.

*Part 2.*—Yeast growth in gelatine media. Hansen's method of pure yeast culture from a single cell. Other methods. Various forms of growth assumed by single species. Hansen's film growth. Ascospore formation; influence of temperature and time. The leading types of yeast; sporulation, film growth, and powers of "attenuation." Wild yeasts. The common moulds. *Amylomyces Rouxii* and its distillery use.

*Part 3.*—The diseases of beer. *Mycoderma vini*. The acetic ferments. *Saccharobacillus Pastorianus* and the lactic ferments. *Pediococci*, and "ropy" beer. *Bacillus viscosus*. The "forcing" of ales and examination of forced samples. Secondary fermentations. Detection of organisms in air and water, and methods of tracing sources of contamination in the brewery. The pasteurization of ale. Antiseptics; their action on living organisms. Their chemical examination.

**HOPS.**—Physical examination of leading kinds; their commercial valuation. Estimation of resins, and tannin. Detection of sulphuring.

**FININGS.**—The various kinds of isinglass and their commercial valuation. The preparation and action of finings.

**WATER ANALYSIS.**—Treated especially from a brewer's point of view. The materials used in treating brewing waters.

**CARAMEL.**—Examination, and valuation by tintometer. Use and methods of testing instruments employed in a brewery. Examination of coal and coke for malting purposes ; etc.

### Lectures.

During the progress of the course of laboratory work lectures are given by the Professor, accompanying, as closely as possible, the course of work followed by the students. These lectures embrace all the main points connected with the science and practice of brewing and malting, and are made as full and comprehensive as possible, special attention being given to the most recent advances in brewing technology and the progress of scientific knowledge bearing on the fermentation industries.

A course of lectures is also given by the Assistant Lecturer on the special chemistry of the carbo-hydrates.

During the course of instruction practical demonstrations are given on the selection and valuation of barley, malt, hops, and other materials used by brewers, and the students are encouraged to familiarise themselves with the usual commercial methods of judging such materials.

### Excursions.

At suitable times during the course of instruction visits are made to breweries and maltings in the neighbourhood, permission to do so being courteously given by several brewers. During these excursions, which are conducted by the Professor, students have the advantage of seeing in practical operation and under various aspects the technical points they are studying. Diploma students are required to attend these excursions.

### General Regulations for Diploma Students.

Each student is expected to keep a laboratory note book, in which full notes must be made on the work he has done, and these books are examined from time to time by the Professor or his Assistant.

At the close of each term examinations are held on the work done, at which all students are required to be present.

At the end of the last term a general practical and written examination in the science and practice of Brewing and Malting is held for those students working for the Diploma of the University; but it should be distinctly understood that, although a student must pass this examination satisfactorily in order to take the Diploma, the general character of the work done during the whole course of instruction and the results of the terminal examinations, are taken into account by the examiners.

## II.—COURSES OF STUDY FOR STUDENTS NOT TAKING THE DIPLOMA COURSES.

Although it is required (with certain exceptions referred to under Diploma Regulations) that the full three years' course of instruction laid down should be followed by students qualifying for the Diploma in Brewing which is granted by the Council of the University, the Brewing Laboratory is open to meet the requirements of those students who, from being already engaged in technical work or from other reasons, are unable to follow the general course.

Such students may take the full year's laboratory and lecture course in the Brewing Department, or shorter and special courses are arranged for them. But as the requirements of such students vary, no course of instruction is laid down definitely; it is determined for each student by the Professor.

Courses of instruction more especially bearing on the technology of Distilling and Vinegar Making are also given. Students entered for any course, for the time being, share all advantages of lectures, excursions, etc., equally with the Diploma students. It is advisable before entering for any course of study that the student should consult the Professor. It is very desirable that students should have a fair knowledge of Chemistry previous to entering for any course of study in the Brewing Laboratory, or be prepared, if possible, to follow a course of study in this science in the University.

### III.—ENCOURAGEMENT OF RESEARCH.

One of the chief objects of the school is to advance research in the many fields open to investigation in connection with the fermentation industries, and the Professor has wide powers with regard to aiding the investigations of competent workers by means of finding accommodation in his laboratories, and in other ways. Communications with regard to such questions should be sent to the Professor direct.

### THE BREWING LABORATORY.

The Laboratory is open daily during the Session from 10 a.m. to 5 p.m., except on Saturdays.

Each student works independently, and is guided in his operations by the Professor or his Assistant.

\* FEES.

	All day.	Three hours per day.	Three hours per day, three days a week.
	<i>Guineas.</i>	<i>Guineas.</i>	<i>Guineas.</i>
ONE TERM .....	9	6	5
TWO TERMS.....	17	11	9
THREE TERMS...	25	15	12

(These fees include all lectures the student may attend during his course of study in the Brewing Laboratory.)

\* Students are required to pay Membership Fees as follows:—

	Session.	Term.
Those attending in two or more subjects ..	£1 1 0	£0 10 6
Ditto in one subject .. .. .	0 10 6	0 5 0



The chief apparatus required is supplied by the Department, subject to the condition that breakages are made good. Some simple apparatus must be provided by the students, but the cost of this need not be large.

### LIBRARY.

A small library of books more especially bearing on Brewing and the kindred fermentation industries is provided in the laboratory for the use of students; but most of the books are for reference only and must not be taken away without special permission. The extensive University Library is also open to students.

The following are a few of the books specially recommended to students: "Text-book of the Science of Brewing," Moritz and Morris (Spon). "Laboratory Text-book for Brewers," L. Briant (Fell and Briant). "Practical Brewing," Southby. "The Principles and Practice of Brewing," Sykes (Griffin and Co.). "A Handy Book for Brewers," Wright (Crosby, Lockwood and Son). "Practical Studies in Fermentation," E. C. Hansen (Spon). "The Microscope in the Brewery," Matthews and Lott (Bemrose). "The Micro-Organisms of Fermentation," Jörgensen (Lyon). "Enzymes and their Actions," Effront (Chapman and Hall).

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## DIPLOMA COURSE.—FIRST YEAR TIME TABLE.

SUBJECT.		FEES.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
	<i>Membership Fee</i>	£1 1 0						
Mathematics	Lectures.....	4 4 0	10.30	10.30	..	10.30	10.30	...
Physics .....	Lectures.....	4 4 0	...	11.30	...	11.30	...	...
	Summer .....		4.0	4.0	4.0	4.0	4.0	...
Ditto .....	Laboratory..	4 4 0	...	2.30-4.30	...	...	2.30-4	...
	Summer .....		2.30-4	...	...	...	11.30	...
Chemistry ...	Lectures.....	2 2 0	...	...	11.30	...	2.30-4	...
	Winter .....		...	...	11.30	...	11.30	...
Ditto .....	Laboratory..	12 12 0	2-5	9.30-10.30	2-5	...	...	9.30-1
	Summer .....		...	...	9.30-11.30	9.30-10.30	9.30-10.30	9.30-1
	<i>Caution Money</i>	1 0 0						
Botany .....	Lectures and Laboratory	3 3 0	9.30-10.30	...	...	2.30-4	...	...
	Drawing.....	0 10 6	11.30-12.30	...	...	4-5	...	...
Engineering			...	...	...	2.30-5	...	...
		£28 16 6						

## SYLLABUS OF FIRST YEAR CLASSES.

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### CHEMISTRY.

*Professor*: PERCY F. FRANKLAND, M.Sc.; Ph.D., LL.D.,  
B.Sc. (Lond.), Assoc.R.S.M., F.R.S.

*Lecturer*: T. SLATER PRICE, Ph.D., D.Sc. (Lond.).

*Demonstrator*:

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#### WINTER AND SPRING TERMS.

*Lectures*.—Two hours weekly. 11.30 on Wednesday and Friday.

Elementary Inorganic Chemistry.

*Laboratory*.—Sixteen hours weekly.

General manipulation. Experiments illustrating some of the fundamental principles of chemistry. Preparation and properties of gases.

Systematic qualitative analysis.

#### SUMMER TERM.

*Laboratory*.—Sixteen hours weekly.

Systematic quantitative analysis. The gravimetric determination of the more important bases and acid radicles, chosen with a view to illustrating typical methods employed in analytical chemistry.

Volumetric analysis.

Although the object of the laboratory work throughout will be to give the student a general knowledge of analytical chemistry, yet the exercises will be, as far as possible, selected so that he may become familiar with such determinations as are of frequent occurrence in the examination of materials related to the fermentation industries.

FEES:—Lecture Course, £2 2s.

Laboratory Course, £12 12s.

Caution Money Deposit, £1

## BOTANY AND VEGETABLE PHYSIOLOGY.

*Professor:* WILLIAM HILLHOUSE, M.Sc. ; M.A., F.L.S.,  
formerly Scholar of Trinity College, Cambridge.

*Assistant Lecturer:* A. H. R. BULLER, Ph.D., B.Sc.

A course of about forty Lectures, with Laboratory work, specially arranged for students in Brewing, will be given throughout the session.

The object of the *Lectures* will be to give the student an insight into the fundamental phenomena of plant life, including the nutritive processes in which ferment action plays a part.

The *Laboratory work* will have the double object of illustrating the Lectures and grounding the students in the use of the microscope as an instrument of observation and investigation. Especial attention will be given to micro-chemistry.

*Lecture Days.*—Monday and Thursday (in Winter and Spring Terms).

*Laboratory* to follow each lecture.

FEE :—£3 3s.

## PHYSICS.

*Professor:* J. H. POYNTING, M.Sc. ; Sc.D., F.R.S., late  
Fellow of Trinity College, Cambridge.

*Lecturer and Demonstrator:* GEORGE E. ALLAN, B.Sc.  
(Lond.).

*Demonstrator:* G. A. SHAKESPEAR, B.A., B.Sc.

LECTURE DAYS :—Winter and Spring Terms, Tuesday and Thursday, at 11.30. Summer Term, Monday, Wednesday, and Friday, at 4 p.m.

*Statics.*—Parallel Forces. Moments. Levers. Balances. Work. Principle of Work. Pulleys. Differential Pulley. Wheel and Axle.

Centre of Gravity. Stability and Instability.

Parallelogram and Triangle of Forces.

Friction. Measurement of Rate of Working.

Elasticity and Rupture of Solids.

*Hydrostatics*.—Fluid pressure, and propositions regarding it.  
Transmission of Fluid Pressure. Hydraulic Press.  
Pressure against surfaces. Cistern Walls.  
Archimedes' Principle. Floating Bodies. Stability and  
Instability of Floating Bodies.  
Specific gravity and methods of determining it.  
Viscosity. Surface Tension.

*Pneumatics*.—Boyle's Law. Air Pump. Atmospheric Pressure.  
Barometer. Common Pump. Syphon.

*Dynamics*.—Velocity and Acceleration. Relativity of Velocity.  
Resolution and Composition of Velocity. Mass. Weight.  
Momentum. Dynamical Measure of Force. Action and  
Reaction. Kinetic Energy and Work. Potential Energy.  
Pendulum Determination of  $g$ .

*General Properties of Matter*.—Diffusion. Solution. Dialysis.  
Osmotic Pressure.

*Heat*.—Temperature. Thermometers. Expansion. Specific Heat.  
Heat and Work. Change of State. Latent Heat. Vapour  
Pressure. Water Vapour in Atmosphere. Conduction.  
Radiation.

*Electricity*.—Electrification by Friction. Two Electrical States.  
Insulators and Conductors. Induction. Gold Leaf  
Electroscope. Frictional Machines. Electrophorus.  
Wimshurst Machine. Leyden Jar.  
Magnets. Magnetic Field. Earth as a Magnet.  
Current. Voltaic Cells. Accumulators.  
Magnetic Measurement of Current by Galvanometers.  
Ampère. Measurement of E.M.F. Volt. Ohm's Law.  
Measurement of Resistance. Ohm.  
Electrolysis. Induction of Currents. Induction Coil.

## EXERCISE AND PRACTICAL COURSE IN THE LABORATORY.

Tuesday, 2.30—4.30.

*The work will consist partly in numerical exercises on  
the lecture work, and partly in simple measurements.*

TEXT BOOKS.—Cumming's Mechanics (Rivington and Percival,  
3s.). Glazebrook's Heat (Camb. Univ. Press, 3s.). Jamieson's  
Elementary Magnetism and Electricity (Griffin, 3s. 6d.).

FEE :—£4 4s.

### MATHEMATICS.

*Professor:* R. S. HEATH, M.Sc. ; M.A., D.Sc., late  
Fellow of Trinity College, Cambridge.

*Lecturer:* C. T. PREECE, B.A. (Cantab.)

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Four hours weekly, at 10.30, on Monday, Tuesday,  
Thursday, and Friday.

The subjects treated in this Class will include :—

ARITHMETIC :—Ordinary Rules, Vulgar and Decimal  
Fractions, Extraction of Square Root, Methods of  
Approximation, Proportion, Interest, Discount, Stocks.

ALGEBRA.—Ordinary Rules, Factors, Fractions, Simple  
Equations in one or more unknown quantities.  
Quadratic Equations and Problems.

GEOMETRY.—The substance of Euclid I.—IV.

FEE :—£4 4s.

### ENGINEERING DRAWING.

*Professor:* F. W. BURSTALL, M.Sc. ; M.A. (Cantab.),  
M.I.C.E., M.I.M.E.

*Lecturer and Demonstrator:* F. H. HUMMEL, A.M.I.C.E.

*Junior Demonstrator:* C. A. SMITH.

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Two and a-half hours per week during the Summer  
Term.

Freehand Model Drawing of simple machine parts,  
the use of scales, Mechanical Drawing in plan,  
elevation, and section from freehand sketches.

Thursdays, from 2.30 to 5.

FEE :—10s. 6d.

DIPLOMA COURSE.—SECOND YEAR TIME TABLE.

SUBJECT.		Fees.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
	<i>Membership Fee</i>	£1 1 0						
Chemistry ...	Lectures.....	{ 6 16 6 }	{ 9.30 9.30 9.30 }	9.30 9.30 ...	9.30 9.30 9.30	9.30 9.30 ...	...	...
	Spring.....						...	...
	Summer.....						...	...
Ditto .....	Winter .....	{ 12 12 0 }	{ 10.30-1 10.30-1 10.30-1 }	10.30-1 ...	10.30-1 2-5 10.30-1	2-4 ... 9.30-1	{ 10.30-1 2-5 9.30-1.0 }	{ 9.30-1 9.30-1 9.30-1 }
	Spring.....							
	Summer.....							
	<i>Deposit for Caution</i>	1 0 0						
Bacteriology.	Lectures & Practical	3 3 0	...	3-5	3-5	3-5	...	...
Geology . . .	Lectures.....	1 1 0	...	...	...	10.30-12.30	...	...
Engineering..	Lectures.....	1 1 0	...	10.30	...	10.30	...	...
Electrical	Lectures.....	0 10 6	...	...	...	2.30	...	...
Engineering	Lectures.....							
Ditto .....	Laboratory..	2 2 0	2-5	...	...	...	...	...
	Summer.....	£29 7 0						



## SYLLABUS OF SECOND YEAR CLASSES.

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CHEMISTRY.

*Professor:* PERCY F. FRANKLAND, M.Sc.; Ph.D.,  
LL.D., B.Sc. (Lond.), Assoc.R.S.M., F.R.S.

*Lecturer:* T. SLATER PRICE, Ph.D., D.Sc.

*Demonstrator:*

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## WINTER AND SPRING TERMS.

*Lectures and Tutorial Class.*—Five hours weekly.

*Winter Term:* 9.30 to 10.30, Monday, Tuesday, Wednesday, Thursday, and Friday.

*Spring Term:* 9.30 to 10.30, Monday, Tuesday, Wednesday, and Thursday.

General course of Inorganic Chemistry. The subject will be dealt with more fully than in the Elementary Course. The scope of these lectures is perfectly general, but wherever opportunity arises reference is made to the applications of the science in the more important industries. The course is arranged with a view to conveying such a knowledge of the science as is indispensable alike for general culture, for those who are commencing the special study of chemistry, and for those who purpose devoting themselves to professions and occupations involving the utilisation of chemical principles.

*Laboratory.*—Eighteen hours weekly.

Introduction to the operations involved in the preparation of organic compounds, including fermentation and fractional distillation.

Elementary Organic Analysis.

Water Analysis and simple Gas Analysis.

## SUMMER TERM.

*Lectures.*—Four hours weekly, 9.30 to 10.30, Monday, Wednesday, and Friday; 4 to 5, Monday.

Elementary Organic Chemistry (three hours weekly). These lectures, although perfectly general in their scope, will include references to the action of ferments and the principal fermentation processes, whilst special attention will be given to the Chemistry of the Sugars and other carbohydrates.

General Course of Inorganic Chemistry (one hour weekly). Conclusion of the course commenced in the winter term.

*Laboratory.*—Eighteen hours weekly.

Continuation of the work indicated above.

**FEES** :—Lecture Course, £6 16s. 6d. ; Laboratory Course, £12 12s. ; Caution Money Deposit, £1.

## BACTERIOLOGY.

*Professor* : R. F. C. LEITH, M.Sc. ; M.A., M.B., B.Sc., F.R.C.P. (Edin.) ; assisted by J. H. MILLER, M.B., Ch.B., F.R.C.P. (Edin.), and C. LEEDHAM GREEN, M.D., F.R.C.S.

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The bacteriological course comprises Lectures, Demonstrations, and Practical instruction in the principles and practice of Bacteriology, especially in their application to the study of brewing. It includes the general structure of bacteria, their relations to food, moisture, temperature, oxygen, light, etc. ; their multiplication, their powers of resistance, spore formation. Position and classification. Their general methods of action. Methods of sterilization. Preparation of culture media. Isolation and cultivation of germs. Pure cultures. Methods of examination, staining, etc.

*Days of meeting.*—Tuesdays, Wednesdays, and Thursdays, in Spring Term, from 3 to 5.

**FEE** :—£3 3s.

**ENGINEERING.**

*Professor:* F. W. BURSTALL, M.Sc.; M.A. (Cantab.),  
M.I.C.E., M.I.M.E.

*Lecturer on Civil Engineering:* F. H. HUMMEL,  
A.M.I.C.E.

*Lecturer on Mechanical Engineering:* R. C. PORTER,  
M.Sc.

*Assistant Lecturer:* C. A. SMITH.

Two hours per week for one term.

**SYLLABUS OF LECTURES.**

*Machinery for hoisting and lifting.*—Pulley blocks, screw and hydraulic jacks, windlasses, conveyors.

*Boilers.*—Cornish, Locomotive, Lancashire, water tube. Heating value of coals, coke, and oils, efficiency of boilers.

*Steam Engines.*—Elementary Theory. Types of horizontal, vertical, pumping, and high-speed engines.

*Oil and Gas Engines.*—Otto Cycle, Elementary Theory, governors, ignition, forms of valves, water jacket, production of gas for motive power.

Oil Engines, vaporizers, Hornsby, Priestman, and Desel motors.

Pumping machinery and piping for water and other liquids.

Artificial production of cold, general theory of inverse heat engines, water and air cooling, ice making, cold air machines (Bell-Coleman), ammonia machines (Linde), carbonic acid machines (Hall).

*Filtration.*—General principles, types of filtration beds, gravel, sand, and carbon filters, filtration presses.

FEE :—£1 IS.

**ELECTRICAL ENGINEERING.**

*Professor of Engineering:* F. W. BURSTALL, M.Sc.;  
M.A., Cantab., M.I.C.E., M.I.M.E.

*Lecturer on Technical Electricity:* D. K. MORRIS,  
Ph.D., A.I.E.E.

*Lectures.*—One hour weekly in third term.

*Practical work.*—Three hours, Mondays, from 2 to 5.

The course will include a general account of the principles of dynamos and motors, and the practical work will consist of illustrations of these principles.

FEE FOR LECTURES: 10s. 6d. ; for Practical Course, £2 2s.

### GEOLOGY.

*Professor:* CHARLES LAPWORTH, M.Sc. ; LL.D., F.R.S., F.G.S.

*Assistant Professor:* W. W. WATTS, M.A., F.G.S., late Fellow of Sidney Sussex College, Cambridge.

*Assistant Lecturer and Demonstrator:* FRANK RAW, B.Sc.

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The following Syllabus of a course of Ten Lectures and Demonstrations upon the Geology of the Water-bearing Rocks summarizes that part of Applied Geology which deals with the subject of Water Supply as related to Brewing. The Lecture Course will follow the lines here laid down, but merely in broad outline. The object of the course is to afford the student a broad sketch of the principles and methods of the subject as a whole, and a general conception of its utility and application.

For Advanced Students, Managers, &c., a more detailed and advanced course with some practical geological work—laboratory or field work—is very desirable.

#### OUTLINES OF THE GEOLOGY OF WATER-BEARING ROCKS.

All water-supply dependent upon Rainfall. Rainfall carried off by (a) *Evaporation* ; (b) *Surface drainage* ; (c) *Subterranean drainage*. The last is of the greatest importance for water-supply for Brewing purposes, and is dependent upon the Superficial Geology and the Solid Geology of any special district.

#### SUPERFICIAL GEOLOGY.

Soils, sub-soils, alluvia, and drifts ; their characters and arrangement.

# SOLID GEOLOGY.

- (i.) The various *kinds of subterranean rock-sheets*: (a) the arenaceous pebble beds, conglomerates, and sandstone; (b) the aluminous clays, shales, and marls; (c) the calcareous and carbonaceous strata, &c.
- (ii.) The mode of *arrangement of the solid rock-sheets*: (a) their stratification, lamination, &c.; (b) their thickness and extent; (c) their arrangement in geological formations and systems; (d) their distribution in Britain.
- (iii.) The *accidents which the rock-sheets have undergone*, their inclination, folds, faults, joints, and fissures.
- (iv.) How to interpret and utilize *Geological Maps and Sections*.

# UNDERGROUND WATER-CIRCULATION.

- (i.) Phenomena of the *percolation and movements of underground water* (a) as determined by the more or less porous nature of the rock, the inclinations and relations of the strata, and by the rock joints and fissures; (b) as affected by (1) mineral matters carried on in solution, (2) deposited and removed in passage, (3) carried off in solution; and (c) as illustrated and utilized in Springs and Wells.
- (ii.) *Quantity of Underground Water* in any district as dependent upon (a) form and drainage of the country; (b) thickness and inclination of the permeable strata; (c) size and area of outcrop; and (d) the underground complications.
- (iii.) *Quality of the Underground Water* (hardness, softness, purity, etc.) in any district as affected by (a) the areas covered by vegetation, devoted to agriculture or mining, or contaminated by presence of large population, etc.; (b) by the kinds and distribution of soils and subsoils; or (c) by the nature of rocks and rock cements etc., of the subterranean strata.

# THE WATER-BEARING ROCK FORMATIONS OF THE MIDLANDS.

The individual characteristics; the areas where they outcrop and where they are water-yielding; and the local quantity and quality of their waters.

*Lecture Day*.—Thursday, 10.30, during Winter Term, or by arrangement.

FEE:—£1 IS.

## THIRD YEAR CLASSES.

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### BREWING.

*Professor*: ADRIAN J. BROWN, M.Sc., F.I.C.

*Assistant Lecturer and Demonstrator*: THOMAS H. POPE,  
A.I.C.

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During the three University terms of this year the students devote the whole of their time to scientific and technical instruction in this department.

For Syllabus of the course of study, refer to page 401, under the heading, "The Diploma Course of Study."

Fees for the Third Year :—£26 15s. 6d.

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### SUMMARY OF FEES FOR DIPLOMA COURSE.

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				£	s.	d.
FIRST YEAR	...	...	...	28	16	6
SECOND YEAR	...	...	...	29	7	0
THIRD YEAR	...	...	...	26	15	6
DIPLOMA EXAMINATION...	...			2	0	0
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## Day Training College.

FOR THE TRAINING OF TEACHERS IN PUBLIC  
ELEMENTARY SCHOOLS.

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### Day Training Board of Studies.

The PRINCIPAL of the University.

The VICE-PRINCIPAL of the University.

Those PROFESSORS at whose classes Training Students are  
from time to time attending.

Miss A. H. JOYCE (Head Mistress).

FRANK ROSCOE (Master of Method).

The Right Rev. E. A. KNOX, D.D.

Rev. M. F. GLANCEY.

Rev. J. A. BELL, M.A.

Rev. J. H. JOWETT, M.A.

Miss H. E. G. DALE.

Miss E. J. SUFFIELD.

WILLIAM ANSELL, Esq.

G. H. KENRICK, Esq.

J. A. PALMER, Esq.

J. H. LLOYD, Esq.

J. G. PENTLAND, Esq.

R. C. GILSON, Esq., M.A.

Miss E. E. M. CREAK, B.A.

Miss C. G. BISHOP.

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*Master of Method (Men):*

FRANK ROSCOE.

*Assistant:*

F. W. TOWLE.

*Head Mistress (Women):*

ANNE HOLLINGWORTH JOYCE.

*Assistant Mistresses:*

FLORENCE C. M. CLARK, B.A., Lond.

EDITH U. SOWERBUTTS, B.Sc. (Vict.)

ADA BLANCHE TAYLOR.

ANNIE E. WARMINGTON, B.A., Lond.

## DAY TRAINING COLLEGE.

In connection with the University there is a Training College, with departments for men and women, constituted under the regulations of the Board of Education, with the object of preparing students to become certificated teachers in Public Elementary Schools.

The ordinary Course covers two years, permission to reside for a third year being granted by the Board of Education in certain cases of special fitness.

Before admission Candidates must satisfy the following requirements :—

- (a) Obtain a first or second class in the Queen's Scholarship Examination or pass one of the examinations accepted by the Board of Education as equivalent thereto.
- (b) Satisfy the Medical Officer of the College as to their general health and physical fitness to undertake the work of teaching.
- (c) Have attained the age of 18 years on the 1st September immediately preceding admission.
- (d) Sign a declaration that it is their bona-fide intention to take up the work of teaching in public elementary schools.

After admission, students pursue in general subjects the curriculum of the University, this Course being recognised by the Board of Education as equivalent to Part II. of the Certificate Syllabus. In addition they receive professional training in the form of :—

- (a) Lectures on the theory and practice of teaching.
- (b) Practice under supervision in certain of the Board Schools of the City.
- (c) Criticism and demonstration lessons.

This Course, with lessons in Reading, Music, &c., is intended to prepare for the Examination held annually by the Board of Education in the subjects of Part I. of the Certificate Syllabus.

During residence an annual grant of £25 in the case of men, and £20 in the case of women is received from the Board of Education. From this sum are deducted the University fees, amounting annually to £12 10s. (men) and £10 (women). The remainder serves as a contribution towards the cost of board and lodging, books, &c.

There is no hostel connected with the University, but students must reside with their parents or guardians, or in lodgings approved by the Master of Method or the Head Mistress, who exercise general supervision over their conduct and studies.

For forms of application and other particulars application should be made to

MR. F. ROSCOE (Men),

MISS JOYCE (Women),

The University of Birmingham.

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## GRADUATES.

## FACULTY OF SCIENCE.

## M.Sc.

## Date of Degree.

Barling, Gilbert	...	...	...	1901
Bridge, Thomas William	...	...	...	1901
Brown, Adrian John	...	...	...	1901
Burstall, Frederick William	..	...	...	1901
Carlier, Edmond William Wace	...	...	...	1901
Carter, Alfred Henry	...	...	...	1901
Foxwell, Arthur	...	...	...	1901
Frankland, Percy Faraday	...	...	...	1901
Heath, Robert Samuel	..	...	...	1901
Hill, Bostock	...	...	...	1901
Hillhouse, William	...	...	...	1901
Horton, Frank	...	...	...	1901
Lapworth, Charles	...	...	...	1901
Leith, Robert Francis Calder	...	...	...	1901
Lloyd, John Alexander	...	...	...	1901
Lloyd, Jordan	...	...	...	1902
Lodge, Oliver	...	...	...	1901
Malins, Edward	...	...	...	1901
May, Bennett	...	...	...	1901
Morrison, James Thomas Jackman	...	...	...	1901
Poynting, John Henry	...	...	...	1901
Redmayne, Richard Augustine Studdert	...	...	...	1902
Sand, Henry Julius Salomon	...	...	...	1901
Saundby, Robert	...	...	...	1901
Slator, Arthur	...	...	...	1901
Smith, Priestley	...	..	...	1901
Taylor, John William	...	...	...	1901
Turner, Thomas	...	...	...	1902
Watts, William Whitehead	...	...	...	1902
Whitcombe, Edmund Bancks	...	...	...	1901
Windle, Bertram Coghill Alan	..	...	...	1901
Wood, Ethel Mary Reader	...	...	...	1902
Wynn, William Henry	...	...	...	1901

## B.Sc.

Ashford, Florence	...	...	...	1902
Boulton, William Savage	...	...	...	1902
Boyer, George Edward	...	...	...	1902

Chattaway, Frederick Daniel	...	...	1902
Clough, George William	..	...	1901
Collinge, Walter Edward	...	...	1902
Denning, Arthur Du Pré	..	...	1901
Ehrhardt, Ernest Francis	...	...	1902
Friend, John Albert Newton	...	...	1902
Gebhard, Norman Leslie	...	...	1901
Gedye, Nicholas George	..	...	1901
Gibson, Walcot	...	...	1901
Groom, Percy	...	...	1902
Housman, Robert Holden	...	...	1901
Knapp, Arthur William	...	...	1901
Lapworth, Arthur	...	...	1902
Lapworth, Herbert	...	...	1901
Lotka, Alfred James	...	...	1901
Magson, Egbert Hockey	...	...	1901
Manton, Arthur Woodroffe	...	...	1901
Merritt, Onèra Amelia	...	...	1902
Morgan, Caroline Edith	...	...	1901
Morris, George Harris	...	...	1901
Phillips, Percy	...	...	1901
Phillips, Walter Charles Stanley	...	...	1902
Pickard, Robert Howson	...	...	1901
Pooler, Frederick John	...	...	1902
Priest, Samuel Benjamin	...	...	1902
Silvester, Harry	...	...	1902
Taylor, Joseph Andrew	...	...	1902
Turner, Thomas	...	...	1901
Twiss, Douglas Frank	...	...	1902
Warth, Frederick John	...	...	1901
Watts, Francis	...	...	1902
Wilding, Jane Ellis	...	...	1902
Willcox, Frank Ernest	...	...	1901

## FACULTY OF ARTS.

## M.A.

Barnett, Arthur James	...	...	1901
Bévenot, Clovis	...	...	1901
Dixon, William Macneile	...	...	1901
Fiedler, Elise Minna	...	...	1902
Fiedler, Hermann Georg	...	...	1901
Hawkes, Margaret Mellard	...	...	1902

Masterman, John Howard Bertram	...	1902
May, Elsie Gertrude ...	...	1901
Muirhead, John Henry ...	...	1901
Sonnenschein, Edward Adolf ...	..	1901
Thomas, Henry ...	...	1902

## B.A.

Brockington, William Allport	...	1902
Douglas, Ella Winifred	...	1902
Hawkes, Margaret Mellard	...	1901
Jackson, Francis Edgar	...	1902
Kirk, Richard Thomas Francis	...	1901
Lee, Winifred ...	...	1902
Marchant, Anne Jane	...	1901

## FACULTY OF MEDICINE.

## M.D.

Browne, Henry William Langley	...	1902
Motteram, Henry Prince	...	1902
Orton, John Orton	...	1902
Owen, David Charles Lloyd	...	1902
Wilkes, George Arthur	...	1902

## M.B. AND CH.B.

Atkins, John Francis	..	...	1902
Belcher, George Clement	...	...	1901
Bennett, William Edward	...	...	1902
Browne, Henry William Langley	...	...	1901
Burd, Reginald Shirley	...	...	1901
Cant, Arthur	...	...	1901
Cant, William John	...	...	1902
Chapman, Walter	...	...	1902
Charsley, Gilbert William	...	...	1901
Clendinnen, William McEntire	...	...	1902
Cureton, Edward	...	...	1901
Emanuel, Joseph George	...	...	1902
Emery, Arthur	...	...	1901
Fowler, Thomas Webb	...	...	1901
Godson, John Edward	...	...	1901
Hall, Frederick James Vincent	...	...	1901
Harcourt, Charles Harold	...	...	1901
Hawley, Arthur	...	...	1901
Hill, George Leonard	...	...	1901



Jackson, Wilfrid Anthony Legh	...	...	1901
Leedham-Green, Charles	...	...	1901
Lloyd, Jordan...	...	...	1902
Longley, John Augustus Noel	...	...	1902
Longmore, Tom	...	...	1901
Lunn, Cyril Reginald	...	...	1902
Lyster, Robert Arthur	...	...	1902
Motteram, Henry Prince	...	...	1901
Orford, Herbert John	...	...	1901
Orton, John Orton	...	...	1901
Owen, David Charles Lloyd...	...	...	1901
Page, Edward Ferdinand	...	...	1901
<i>Pepper, Henry William (the late)</i>	...	...	1901
Polson, James Ronald	...	...	1902
Pooler, Harry William	...	...	1901
Prosser, Astley Bennett	...	...	1901
Quirke, Michael Joseph	...	...	1901
Sisam, William	...	...	1901
Smith, Priestley	...	...	1901
Stanley, Arthur John	...	...	1901
Townsend, Arthur Allen Deykin	...	...	1901
Utting, Horace Ebbage	...	...	1902
Webb, Thomas Law	...	...	1901
Whitcombe, Edmund Bancks	..	..	1901
Wilkes, George Arthur	...	...	1901

## M.D.S.

Humphreys, John	...	...	1901
Huxley, Frank Earle	..	...	1901
Round, Harold	...	...	1902

## B.D.S.

Round, Harold	...	...	1901
Whittles, John Dencer	...	...	1901

## B.Sc. (PUBLIC HEALTH).

Barwise, Sidney	...	...	1902
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## FACULTY OF COMMERCE.

## M.Com.

Ashley, William James	...	...	1902
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**DIPLOMAS.****DIPLOMA IN PUBLIC HEALTH.**

Bonis, Francis William	...	...	...	1901
Dyson, Thomas Edward	...	...	...	1902
Lyster, Robert Arthur	...	...	...	1901
Sims, Aaron	...	...	...	1901
Turner, Robert	..	...	...	1901

**TEACHERS' DIPLOMA.**

Douglas, Ella Winifred	...	..	...	1902
Evans, Henry Edgar...	...	...	...	1901
Sutcliffe, Annie Boardal	...	...	...	1901
Wynn, William Benjamin	...	...	...	1902

**BREWING DIPLOMA.**

Bexon, Joseph Donald	...	..	...	1901
Cooke, Richard Ernest	...	...	...	1902
Elliott, William Blake	...	...	...	1901
Jones, Archdale Mercer	...	...	...	1902
Morley, Thomas Henry	...	...	...	1901
Robottom, Charles Henry	...	...	...	1902
Rudgard, Charles Walter	...	...	...	1902

**HONOURS.****AT B.Sc. DEGREE.**

Ashford, Florence (Geology)	...	...	1902
Friend, John Albert Newton (Chemistry)	...	...	1902
Merritt, Onèra Amelia (Zoology)	...	...	1902
Phillips, Percy (Physics)	...	...	1901
Twiss, Douglas Frank (Chemistry)...	...	...	1902

**AT B.A. DEGREE.**

Kirk, Richard Thomas Francis (Latin, Greek and French)	...	...	...	1901
---	-----	-----	-----	------



## ASSOCIATE MEMBERS OF GUILD OF GRADUATES.

ELECTED.

Addenbrooke, Edward Homfray, M.R.C.S. ....	1897
Ainsworth, William Brown, B.A. (Lond.) .....	1890
Atchison, Arthur Francis Turnour .....	1901
Austin, John Worsley, B.A. (Lond.).....	1892
<i>Austin, William Henry, B.A. (the late).....</i>	<i>1897</i>
Badger, Alfred Bernard, M.A. (Oxon.).....	1890
Baker, Thomas James, B.Sc. (Lond.) .....	1888
Barclay, John, B.Sc. (Lond.) .....	1890
Barnes, Arthur Stanley, B.Sc. (Lond.).....	1896
Barnes, Frank, M.R.C.S., L.R.C.P. ... ..	1900
Barratt, John Oglethorpe Wakelin, M.D., B.Sc. (Lond.) .....	1884
Barrett, Helen Mary, M.A. (Lond.) .....	1897
Baylis, Walter Henry, B.A. (Lond.).....	1890
Bayliss, Jessie Sproat, B.Sc. (Lond.).....	1892
Beck, Charles Ridgeway, A.I.C. ....	1890
Billington, William, M.B. ....	1900
Bishop, Douglas Howard .....	1900
Blackburn, Alfred Brown Ernest (Senior Engineering Diploma)	1897
Blake, James Edward Huxley, B.A. (Cantab.), B.Sc. (Lond.)...	1887
Blakesley, Henry John, F.R.C.S. ....	1897
Bond, Francis Thomas, M.D. (Lond.) .....	1897
Branson, Guy Joseph, B.A., M.B. (Lond.) .....	1890
Brockington, Alfred Allen, B.A. (Lond.).....	1892
Buller, Arthur Henry Reginald, B.Sc. (Lond.) .....	1897
Cantrill, Thomas Crosbee, B.Sc. (Lond.).....	1890
Carter, Mrs. E. M. ....	1890
Case, Alfred Edwin, B.Sc. (Lond.) .....	1899
Clayton, John Hazelwood, M.B. (Lond.) .....	1897
Cooper, Arthur James, B.Sc. (Lond.) .....	1890
Corbett, Ethel, M.A. (Lond.) .....	1899
Cullis, Frederick John.....	1890
Daniell, George Frederick, B.Sc. (Lond.) .....	1890
Darlaston, George Ernest, B.A. (Lond.).....	1899
Dewes, Henry .....	1890
Edmunds, Edward William, M.A. (Lond.).....	1899
Edwards, Jessie, M.A. (Lond.) .....	1890

## ELECTED.

Edwards, Herbert James, B.Sc. (Lond.) .....	1893
Elkington, Ernest Alfred, M.B. (Lond.), M.R.C.S. ....	1897
Ellis, Mrs. Bernard .....	1890
Emery, Walter d'Este, B.Sc. (Lond.) .....	1893
Etheridge, Arthur Thomas, B.Sc. ....	1900
Exell, William Wallis, B.A. (Lond.) .....	1890
Faulkner, William, B.A. ....	1901
Featherstone, William Barltrop, M.D. (Lond.) .....	1890
Fenby, Alaric Vincent Colpoys, B.Sc. (Lond.) .....	1892
Finney, William Arthur, B.A. (Lond.) .....	1893
Fridlander, Ernest David, B.Sc. (Lond.) .....	1893
Gamgee, Leonard Parker, F.R.C.S. ....	1893
Greenwood, Frank Redmayne, M.D. ....	1900
Griffiths, John Crisp, B.Sc. (Lond.) .....	1893
Gregory, Charles Frederick, M.A. (Lond.) .....	1897
Hackett, John (Senior Engineering Diploma) .....	1890
Haines, Aubrey Wheeler, B.Sc. (Lond.) .....	1890
Harrold, Edith .....	1897
Heathcote, Henry Leonard .....	1900
Hooson, John Edward, B.Sc. (Lond.) .....	1893
Housman, Basil Williams, F.R.C.S. ....	1893
Hulse, Richard Percival .....	1901
Jackson, Alfred Edward (Senior Engineering Diploma) .....	1889
James, Elizabeth Angela .....	1890
Jenkyn-Brown, Lilian Evelyn, M.A. (Lond.) .....	1892
Jones, Oliver, B.A. (Lond.) .....	1891
Jordan, Walter Ross, M.D. (Lond.) .....	1890
Jordan, John Furneaux, M.B., B.Ch. (R.U.I.), F.R.C.S., Eng.	1890
Joyce, Thomas Goode, B.Sc. (Lond.) .....	1897
Kauffmann, Otto Jackson, M.D., Lond. ....	1900
Kellett, Alfred Featherstone, B.A. (Cantab.) .....	1890
Kidner, Norman William .....	1890
Kinder, Frederick Thomas (Senior Engineering Diploma) .....	1897
Kneale, James Coole, L.R.C.P. and S. ....	1893
Langford, William Morris (Senior Engineering Diploma) .....	1888
Lay, Charles Johnson, B.A. (Cantab.) .....	1890
Ledsam, Henry Thomas Clutton Salt, B.A. (Lond.) .....	1890
Loasby, Harry Clement, B.A. (Lond.) .....	1893

## ELECTED.

Love, Ernest F. J., M.A. (Cantab.) .....	1888
Lloyd, Emily Jane, B.Sc. (Lond.) .....	1893
Mackey, Edward, M.D. (Lond.), M.R.C.P. ....	1897
MacSwiney, Felix, B.A. (Lond.) .....	1890
Maddocks, Arthur Percy (Senior Engineering Diploma) .....	1892
Malins, Joseph, Jun., M.A. (Lond.) .....	1891
Marks, Lionel Simeon (Senior Engineering Diploma), B.Sc. (Lond.) .....	1891
Marks, Benjamin, B.A. (Lond.) .....	1893
Marris, William Arthur, M.D. (Lond.) .....	1898
Marson, Cyril Darby, M.R.C.S., L.R.C.P., L.D.S. ....	1898
Marson, Francis Herbert, F.R.C.S. (Eng.) .....	1896
Martin, Arthur James, M.D. (Lond.) .....	1893
Mathews, Marianne .....	1890
Melson, George Hyde, M.D. (Lond.) .....	1891
Merrall, George James, B.A. (Lond.) .....	1893
Messiter, Matthew Arden, M.R.C.S. ....	1897
Millar, James Hill .....	1901
Miners, Bernard Perry, M.A. (Lond.) .....	1890
Moncrieff, Lady .....	1890
Norris, Richard, M.D. ....	1897
Nuthall, Alexander Wathen, F.R.C.S. ....	1898
O'Dowd, John Austin, M.B. ....	1900
Onions, Charles Talbut, M.A. (Lond.) .....	1893
Pemberton, Jane Elizabeth .....	1896
Perry, Sidney Herbert, M.D. (Lond.), M.R.C.P. ....	1893
Price, Thomas Slater, D.Sc. (Lond.) .....	1896
Pugh, John Vernon (Senior Engineering Diploma) .....	1897
Purslow, Charles Edwin, M.D. (Lond.), M.R.C.P. ....	1890
Reynolds, Albert Heywood, B.A. (Lond.) .....	1890
Riley, John Thomas, D.Sc. (Lond.) .....	1884
Russell, James William, M.D. (Cantab.) .....	1893
Sadler, Ernest Alfred, M.D. (Lond.) .....	1893
St. Johnston, George, M.D. (Lond.) .....	1896
Shakespeare, Gilbert Arden, B.A., B.Sc. (Lond.) .....	1897
Shedden, Arnold Ward, M.R.C.S., L.R.C.P., L.D.S. ....	1898
Sinigar, Harry, M.B. (Lond.) .....	1896
Smith, Thomas Manners, M.A., M.R.C.S. ....	1893

## ELECTED.

Snell, Ernest Hugh, M.D., B.Sc. (Lond.) .....	1890
Southall, Gertrude Eliza .....	1890
Stacey, William Henry (Senior Engineering Diploma) .....	1900
Stansbie, John Henry, B.Sc. (Lond.) .....	1893
Stern, Arthur Landauer, D.Sc. (Lond.) .....	1888
Stern, Rose, B.Sc. (Lond.).....	1898
Sturge, Mary Darby, M.D. (Lond.) .....	1890
Suckling, Cornelius William, M.D. (Lond.).....	1897
Suckling, Marianne E. ....	1897
Sudborough, John Joseph, D.Sc. (Lond.) .....	1890
Teichelmann, Ebenezer, F.R.C.S. ....	1890
Thomas, William, M.B. (Lond.), F.R.C.S. (Eng.).....	1897
Tibbetts, Thomas Major, M.B. (Lond.), D.P.H. ....	1896
Udal, John Pountney (Senior Engineering Diploma).....	1894
Vincent, Thomas Swale, M.B. (Lond.) .....	1898
Vincent, Joseph Herbert, D.Sc. (Lond.)... ..	1899
Ward, Charles Frederick Myers.....	1893
Warmington, Edward Augustus, Ph.D. (Leipzig) .....	1894
Wheatley, Arthur John (Senior Engineering Diploma) .....	1887
White, Mrs. Robert, D.Sc., (Lond.) .....	1888
White, James Atkin Henton, M.D., F.R.C.S. ....	1897
Wilders, John St. Swithin, M.R.C.S .....	1897
Williams, Walter Collingwood, B.Sc. (Lond.) .....	1884
Wood, George Croft Orwin (Senior Engineering Diploma).....	1887
Wyatt, Alfred John, M.A. (Lond.), B.A. (Cantab.).....	1891





## UNDERGRADUATES IN RESIDENCE

DURING THE SESSION 1901-02.

---

- 99 Aitken, Robert Wallace.
- 234 Alexander, Connel William Long.
- 249 Anderson, Edward Bertram.
- 190 Armitage, Dora Kathleen.
- 33 Ashford, Florence.
- 110 Astbury, Reginald Hudson.
- 194 Ault, Wilfrid Beaumont.
- 120 Austin, John Staines.
- 129 Aviss, William George.
- 12 Bach, May Gertrude.
- 209 Ball, Lawrence.
- 49 Barling, Seymour Gilbert.
- 244 Barnes, James Hector.
- 36 Barrow, Fred.
- 243 Baxter, Donald John William.
- 210 Boome, Edward James.
- 27 Bowater, William.
- 15 Boyer, George Edward.
- 242 Bracey, Herbert Charles Horace.
- 75 Bridge, John Frederick.
- 106 Bröderick, Frederick William.
- 200 Brown, Robert Alfred.
- 16 Bunting, Edward Lancelot.
- 111 Butler, Percival.
- 46 Carruthers, Walter Donald.
- 236 Chamberlain, Charlotte.
- 47 Clare, Thomas Charles.
- 237 Clarke, Mary.
- 149 Coltart, William Laurie.
- 181 Condry, Mabel Alice.
- 167 Cook, William.
- 180 Cooke, Edith Ellen.
- 252 Cox, Arthur Hubert.
- 103 Cox, Clement Harlow.
- 215 Creswell, Arthur Wilfred.
- 155 Creswell, Percival Thomas.
- 96 Crowe, Henry Neville.

- 169 Davis, Amy.  
199 Davis, Herbert Valentine.  
82 Davies, Fred Thomas Hollway.  
48 Dawson, Joseph Bernard.  
245 Descombes, Marie Elysee Alphonse.  
8 Done, Edward.  
124 Doubleday, John Lloyd.  
66 *Doughty, Walter Drane.*  
34 Douglas, Ella Winifred.  
192 Dowson, Richmond.  
225 Eales, Henry Baldwin Fulford.  
108 Eccles, Bertram Joseph.  
179 Edge, Elizabeth Sarah.  
233 Eglington, Clara.  
117 Elwell, Herbert.  
7 Evans, Harvey Atkins.  
10 Frankland, Edward Percy.  
31 Friend, John Albert Newton.  
224 Gaunt, Eric Thomas.  
223 Gaunt, John Kennedy.  
247 George, Edward Lionel Pascoe.  
204 George, Lillian Emilie.  
134 Gettings, Cuthbert Keay.  
132 Gettings, Harold Salter.  
65 Glissan, Francis Reginald D'Alton.  
128 Green, Arthur Augustus Russell.  
39 Greener, Helen Gertrude.  
218 Griffin, Frederick Charles.  
71 Griffin, Ruth.  
143 Grove, Edith Dora.  
17 Hadley, Leonard Leigh.  
37 Handley, Marion.  
221 Harris, Arnold William Elsmere.  
81 Hawkes, Richard John James.  
118 Hawthorn, Henry William John.  
9 Hayes, Lionel Chattock.  
240 Hayward, Bushnell.  
216 Heathcote, Ernest William.  
172 Heseltine, Joseph Richard Ewart.  
184 Hillhouse, John Paton.  
226 Hincks, Arthur Cecil.  
51 Hird, Robert Beatson Dennis.

- 95 Holland, William Algernon Lewis.  
195 Horsburgh, Harry.  
92 Horton, William Claude.  
28 Houghton, William Cuthbert.  
137 Hunt, Richard Stuart Wathen.  
189 Imms, Augustus Daniel.  
123 Jackson, Francis Edgar.  
201 Johnson, Claude.  
80 Johnston, Thomas Reginald St.  
178 Jones, Florence Annie.  
20 Jotham, George Frederick.  
90 Katz, Jacques.  
171 Kenderdine, Ernest Henry.  
231 Kenwrick, Miriam Ida.  
146 Keys, William Harold.  
98 Kirk, Richard Thomas Francis.  
24 Knapp, Arthur William.  
205 Landon, Hilda Mary.  
169 Lee, Winifred.  
197 Lightfoot, Mildred.  
208 Lloyd, Bertram Arthur.  
116 Maberley, Frederick Herbert.  
107 Machin, Frank Smith.  
170 Mackey, Leonard George Joseph.  
202 Mackintosh, Christina Alice.  
25 Markwick, Wilfred Leslie.  
162 Marshall, Herbert Frank.  
203 Mason, Lottie Beatrice.  
241 Mason, Philip James.  
13 Merritt, Onèra Amelia.  
253 Mills, George Percival.  
222 Minahan, Rosa.  
251 Moncur, James.  
177 Moon, Melita Mary Annie.  
86 Morris, George Edward Victor.  
64 Mumford, Grace Adelaide.  
50 Parsons, Leonard Gregory.  
14 Partridge, Gertrude Mary.  
219 Payton, Margaret Evelyn.  
238 Penrose, Nevill Coghill.  
139 Phillips, Walter Charles Stanley.  
207 Phipson, Edward Selby.

- 100 Pickerill, Henry Percy.  
212 Pipe, Thomas Sylvanus.  
73 Plant, David Wallace.  
104 Pooler, Frederick John.  
70 Pontifex, Edith Beatrice.  
176 Poynting, Arthur.  
211 Priestman, Ethel Mercy.  
135 Price, Lawrence Edwin.  
60 Ravenhill, Thomas Holmes.  
43 Record, Stanley Pamphilon.  
109 Rigby, Cyril Stephen Stokes.  
186 Roberts, Eleanor Hannah.  
29 Roberts, Samuel Arthur.  
175 Roberts, Walter Rowland Southall  
67 Rollason, George.  
4 Rollason, Norman John Lancelot.  
94 Rosborough, Stanley Melville.  
136 Ryland, Chawner.  
214 Sanders, Arthur Addison.  
217 Scott, Percy Eliot.  
79 Seers, Marie Josephine.  
246 Sherburn, Alfred.  
22 Smith, Arthur John.  
196 Smith, David Priestley.  
93 Smith, Jane Ingham.  
68 Southall, Dora Muriel.  
38 Stanton, Ruth Marian Trigg.  
227 Suckling, John Jerome.  
55 Sullivan, Patrick Arthur.  
183 Sutherns, Bertha Edna.  
3 Tangye, Claude Edward.  
11 Taylor, Joseph Andrew.  
57 Thomason, Henry Philip.  
102 Thompson, Charles Joseph.  
21 Thompson, Herbert Bryan.  
19 Thorneycroft, Frederick James.  
97 Thwaite, Harold.  
198 Timmins, George Dickinson.  
174 Tomey, Edmund Vaughan.  
228 Tranter, Marion Eva.  
206 Tunbridge, Edward William.  
182 Turner, Edith.

- 248 Turner, William Ernest Stephen.  
235 Twigg, Elinor Adeline Nicolina.  
1 Twiss, Douglas Frank.  
130 Wakefield, Walter.  
5 Walker, Spencer Graham.  
126 Walsh, Fred Newton.  
239 Walter, D'Arcy Joseph.  
160 Ward, Bernard Joseph.  
62 Ward, Ellen.  
145 Ward, Horace Walshman.  
45 Warren, Herbert Henry.  
53 Weaver, Alfred Ernest Remmett.  
220 Weetman, William Charles Cumming.  
56 Whaite, Herbert Hoyle.  
35 Whitcombe, Edmund Stanley.  
41 Whitcombe, Harold Arthur.  
42 Wilding, Jane Ellis.  
101 Wilkinson, Edmund.  
88 Wilkinson, Frederick.  
2 Williams, Norman Valentine.  
229 Wilson, Arthur.  
157 Wisbey, Walter Chaplin.  
232 Wood, Ethel Mary Reader.  
63 Wragg, Harriet.  
213 Wright, Seymour Cartmell.  
193 Wynn, William Benjamin.  
152 Wynn, William Henry.  
191 Young, Francis Brett.
-

## Students attending Classes during Session 1901-1902.

### STUDENTS IN SCIENCE AND ARTS.

Acton, Harriett  
 Airy, Carril  
 Albright, Mrs. W. A.  
 Alexander, Connel William Long  
 Alexander, Muriel Evelyn  
 Alsop, Edythe  
 Anderson, Edward Bertram  
 Andrew, Florence  
 Ashford, Florence  
 Ashford, Lydia Bright  
 Aston, Kate Louise  
 Ault, Wilfrid Beaumont

Bach, May Gertrude  
 Bache, Gertrude  
 Bailey, Florence Emily  
 Ball, Lawrence  
 Barlow, Osborn  
 Barnes, James Hector  
 Barnes, William Henry  
 Barnett, Arthur James  
 Barnsley, Frank Herbert  
 Barr, Percival Stanley St. John  
 Barrow, Fred  
 Basterfield, Stewart  
 Bates, Frank  
 Bauer, Grace Martha  
 Baxter, Donald John William  
 Bellows, John Earnshaw  
 Bennett, Margaret  
 Besemeres, Ada Jane  
 Bidwell, Leonard Muriel  
 Bishop, Ernest William  
 Booth, Elsie Mary  
 Boothby, John Norman  
 Bourne, James Robert Wykeham  
 Bowater, Dora

Boycott, Thomas Archibald  
 Boyer, George Edward  
 Brett, Clara Emily  
 Brock, Kate Ursula  
 Bröcker, Constance Beatrice  
 Broderick, George Edward Peach  
 Brooks, Henry Boulton  
 Browett, Alfred  
 Brown, Francis Harmar  
 Brown, Helen Mildred  
 Brown, Ronald Adrian  
 Browning, Samuel  
 Browning, Mrs. S.  
 Bunce, Myra Louisa  
 Bushell, William Herbert  
 Butcher, Herbert Thomas

Cadbury, Helen  
 Caddick, Helen  
 Carruthers, Robert George  
 Carter, Francis Boake  
 Carter, George  
 Catterson-Smith, John Keats  
 Chamberlain, Charlotte  
 Chamberlain, John  
 Chamberlain, Ruth  
 Chamberlin, William Bertram  
 Chandler, Noël Raymond  
 Clarke, Hilda  
 Clarke, Athol Wilfrid  
 Clarke, Eunice  
 Clarke, Evelyn  
 Clarke, Louise Josephine  
 Clibborn, Alice  
 Coltart, William Laurie  
 Cooke, Richard Ernest  
 Coote, Charles Robert Purdon



Couchman, Cecily Frances  
 Cox, Arthur Hubert  
 Crabtree, George Alexander  
 Creswell, Arthur Wilfred  
 Creswell, Percival Thomas

Danielson, Lily  
 Davis, Humphrey Peter  
 Davis, Wilfrid Henry  
 Denning, Arthur Du Prè  
 Descombes, Marie Elysée Alphonse  
 Dick, Annie McEwen  
 Dixon, Mrs. C. W.  
 Done, Edward  
 Dowler, Harry Frederick  
 Dowson, Richmond  
 Dunkley, Daisy Adelaide  
 Dupree, William

Eglington, Clara  
 Emanuel, Mrs. L.  
 Evans, William

Fellows, John Richard  
 Fidoë, John Walter  
 Fiedler, Mrs. H. G.  
 Fisher, Frederick Pearson  
 Fisher, George William  
 Fitter, Sidney Harry  
 Fitzgerald, Maurice Bolton  
 Ford, Agnes Mary  
 Fowler, Alfred Vaughan  
 Frankland, Edward Percy  
 Freeman, Amy Helen  
 Freeman, George  
 Friend, John Albert Newton

Gardner, William Ernest  
 Garratt, Charles Edgar  
 Gazy, William  
 Gebhard, Norman Leslie  
 Georges, Julie  
 Gibbins, Ada

Gibbons, John  
 Godfrey, Mrs. L. H.  
 Goodwin, Norman Parkes  
 Grant, Thomas Edward  
 Grenville, Leonard William  
 Griffin, Frederick Charles  
 Griffin, Jack  
 Grimley, Ethel

Hadley, Ada  
 Hale, Mabel Mildred  
 Hall, Kate  
 Hall, Mrs. William  
 Hanbury, Beatrice  
 Hanbury, Edith  
 Hanson, Thomas  
 Harding, Mrs. Charles  
 Harmar, Cuthbert Izon  
 Harris, Arnold William Elsmere  
 Harrison, William Jerome  
 Harrold, Edith  
 Hartle, Hilda Jane  
 Hatton, William Howard  
 Hawkes, Margaret Mellard  
 Heathcote, Ernest William  
 Heckford, Henry Herbert  
 Hendriks, Mrs. Henry  
 Herbert, Gerald Oscar  
 Hill, Victor Baillie  
 Hill, George Baillie  
 Hillhouse, John Paton  
 Hodgkinson, Basil  
 Hodson, Eleanor  
 Holbeche, Henry Ambrose  
 Holt, Barbara Mary  
 Homer, Annie  
 Horsburgh, Harry  
 Howl, Clifford  
 Hughes, Herbert Hillier  
 Hulse, Richard Percival  
 Hutton, John

Imms, Augustus Daniel

James, Albert Richard  
Jefferys, Ernest Walter  
Jessop, Winifred Emily  
Jones, Archdale Mercer  
Jones, William Vincent

Katz, Jacques  
Kemp, Albert  
Kenway, William  
Kenwick, Miriam Ida  
Keys, William Harold  
Kirk, Richard Thomas Francis  
King, Florence Mary  
King, Joseph Haselden  
Kingstone, John James  
Knapp, Arthur William  
Knox, Thomas Kenneth  
Knyvett, Rose Margaret

Langham, Percy James  
Lapworth, Edith Matilda  
Lathbury, George Lionel  
Lee, Winifred  
Lewis, Irene Ida  
Lightfoot, Mildred  
Lineham, Joseph  
Linell, John Roy  
Lloyd, Adelaide Jane  
Lloyd, Bertram Arthur  
Lloyd, Edyth May  
Lloyd, Lewis  
Lodge, Lionel  
Longstaffe, Leo John  
Lord, Harold

Macswiney, Felix  
Malins, Joseph  
Mander, Percy George  
Marlow, Mrs. C. F.  
Marshall, Mary Flamank  
Marston, William Hornblower  
Matthews, Harry Bryant  
Mears, Frank Charles

Menke, Mrs. C. F.  
Merry, Walter Edmund  
Merritt, Onèra Amelia  
Meyer, Mrs. J. H. K.  
Millar, Edmund Theodore  
Miller, Laura Kate  
Minogue, Frank  
Mitton, Ethel  
Mole, Hilda Muscott  
Moncur, James  
Moon, Melita Mary Annie  
Moore, Charles Josselyn Lay  
Moore, William  
Morgan, Caroline Edith  
Mornich, Max  
Muirhead, Mrs. J. H.

Nanson, Cuthbert Ridgeway  
Nicholson, Geoffrey  
Nutting, Ernest Stanley

Oliver, Brian Edward  
Oppermann, Percival Herrman  
Orwin, John Monkhouse

Parkes, Emily Harding  
Parker, William Bayley  
Partridge, Gertrude Mary  
Patrick, Walter Sydney  
Payton, Margaret Evelyn  
Pearson, Noël Murray  
Perks, Samuel Francis  
Phillips, Percy  
Phillips, Walter Charles Stanley  
Phipson, Edward Selby  
Pickup, Arthur McLean  
Pipe, Thomas Sylvanus  
Player, Edward  
Player, Percy Charles  
Pollock, Hilda Gilchrist  
Pooler, Frederick John  
Powell, Nellie  
Poynting, Arthur  
Poynting, Hilda

Price, Ernest  
 Pritchett, Alfred Beal  
 Pullen, Richard Standeford  
 Purslow, George

Raine, Sidney  
 Ravenhill, Annie Sibyl  
 Rawlings, Arthur Lionel  
 Reade, Charles James  
 Record, Stanley Pamphilon  
 Riley, Howard  
 Roberts, Samuel Arthur  
 Robertson, William Brown  
 Robinson, Armstrong Garfield  
 Robottom, Charles Henry  
 Rogers, Thomas Ibbotson  
 Rose, Robert  
 Ross, Harry Leith  
 Rudgard, Charles Walter  
 Rudgard, Francis Hugh  
 Russell, Clive  
 Ryland, Chawner

Sanders, Annie Elizabeth  
 Saunders, Lucy Metta  
 Scott, Anna Dorothea  
 Scott, Gilbert Shaw  
 Scott, Percy Eliot  
 Seabrooke, Frank Gordon  
 Seers, Marie Josephine  
 Shaw, Hilda  
 Showell, Walter Edwin  
 Shufflebotham, Edith  
 Slator, Richard  
 Small, Henry John  
 Soutter, Wilfred  
 Staveley, May  
 Stern, Rose  
 Stevens, Adrian Henry  
 Stokes, Mark  
 Stoney, Malcolm Percy  
 Stott, William Henry  
 Stuart, Murray

Suckling, John Jerome  
 Suckling, Marianne  
 Sunderland, Stafford Scollick

Taylor, Joseph Andrew  
 Thiergen, Valerie  
 Thomas, Henry  
 Thomas, Mary Beatrice  
 Thompson, Charles Joseph  
 Thompson, Herbert Bryan  
 Thompson, Samuel Harold  
 Thomson, Irene  
 Thorne, William Crockatt  
 Thorneloe, Etty  
 Thorneycroft, Frederick James  
 Thwaite, Harold  
 Tildesley, Miriam L.  
 Tomkinson, Mrs. M.  
 Trafford, Joseph Peter  
 Tredinnick, Nicholas William  
 Tryon, Claude Francis Henry  
 Tunbridge, Edward William  
 Turner, William Ernest Stephen  
 Twigg, Elinor Adeline Nicoline  
 Twiss, Douglas Frank

Vaughan, Frank Douglas

Wagstaffe, James Bentley  
 Wakeman, Frederick  
 Walker, John Robert  
 Walter, D'Arcy Joseph  
 Warth, Fred John  
 Ward, Ellen  
 Watts, Francis  
 Webb, Martha Beatrice  
 Webster, Dora  
 Weetman, William Charles  
     Cumming  
 Wells, Gertrude Lucy  
 West, Percival  
 Weston, Thomas Alexander

Whitcombe, Harold Arthur  
 White, James Atkin Henton  
 Whitehouse, Horace Heathcock  
 Wilding, Jane Ellis  
 Willcox, Frank Ernest  
 Willis, Mrs. S. C.  
 Williams, Samuel de la Grange  
 Wilson, Arthur  
 Wisbey, Walter Chaplin

Wood, Arthur  
 Wood, Ethel Mary Reader  
 Wright, Albert Howard  
 Wright, Harold Purton  
 Wright, Robert  
 Wright, Seymour Cartmell  
 Wynn, William Benjamin  
 Yates, James

### STUDENTS IN MEDICINE.

Aitken, Frederick Watson  
 Aitken, Robert Wallace  
 Allen, Richard Clayton  
 Allport, Wilfrid  
 Andrews, George Lancelot  
 Astbury, Reginald Hudson  
 Atkins, John Francis  
 Austin, John Staines  
 Aviss, William George  
  
 Baillie, Robert Tallis  
 Barker, Frederic  
 Barling, Seymour Gilbert  
 Beards, Ernest Jonathan  
 Blaxley, Thomas Tebbutt  
 Boome, Edward James  
 Bowater, William  
 Bowen, William  
 Bracey, Herbert Charles Horace  
 Bradley, Alwyn Hewett  
 Bridge, John Frederick  
 Broderick, Frederick William  
 Brown, Harold Corser  
 Bullock, Roger  
 Bunting, Edward Lancelot  
 Butler, Percival  
 Bygott, Albert Henry  
  
 Caddick, Charles John  
 Carruthers, Walter Donald

Cassells, William  
 Chapman, Walter  
 Clare, Thomas Charles  
 Clarke, Mary  
 Clendinnen, William McEntire  
 Coghill, Violet Alice Penrose  
 Cooke, William  
 Cooper, Frank  
 Cordon, Archibald  
 Cox, Clement Harlow  
 Croll, Andrew  
 Crouch, Richard Halford Winterley  
 Crowe, Henry Neville  
 Curle, Reginald  
  
 D'Abreu, John Francis  
 Davies, Fred Thomas Hollway  
 Dawes, Edward Peter Joseph  
 Dawson, Joseph Bernard  
 Doubleday, John Lloyd  
 Downey, John  
 Dyson, Thomas Edward  
 Eales, Henry Baldwin Fulford  
 Eccles, Bertram Joseph  
 Edwards, Richard Burnell  
 Elwell, Herbert  
 Everill, Sydney Frank Henderson  
 Evans, Harvey Atkins  
 Evans, J. Jameson

Fawcett, Harry Rowland  
 Fisher, Frederick Pearson  
 Flewitt, Charles York  
 Flint, William Henry  
 Foster, John Vere

Garman, John Bernard  
 Garrard, Edward Brown  
 Gaunt, Eric Thomas  
 Gaunt, John Kennedy  
 Gettings, Cuthbert Keay  
 Gettings, Harold Salter  
 Gill, Sutton Dudley  
 Glaze, Thomas Horace  
 Glissan, Francis Reginald D'Alton  
 Green, Arthur Augustus Russell  
 Greener, Helen Gertrude  
 Griffin, Robert William  
 Grove, Edith Dora

Hadley, Leonard Leigh  
 Hale, Edward Rigby Stephenson  
 Harris, James Henry  
 Harris, William  
 Hartle, Hilda Jane  
 Hassall, Gerald Wright  
 Hawkes, Richard John James  
 Hawthorn, Henry William John  
 Haynes, Lionel Chattock  
 Hayward, Bushnell  
 Heggs, Francis Raymond Mitchell  
 Henderson, John Hunter  
 Heseltine, Joseph Richard Ewart  
 Hincks, Arthur Cecil  
 Hird, Robert Beatson Dennis  
 Hodson, Eleanor  
 Holland, William Algernon Louis  
 Hollick, Edward Henry  
 Horton, John Joseph  
 Horton, William Claude  
 Houghton, William Cuthbert  
 Huddleston, Thomas

Hues, Herbert Walter  
 Hunt, Richard Stuart Wathen

Iles, Charles Edward  
 Ireland, Archibald Edward

Johnson, Claude  
 Johnston, Thomas Reginald St.  
 Jones, Ernest Williams  
 Jones, George Austin  
 Jones, Harold Bruce  
 Jotham, George Frederick

Kenderdine, Ernest Henry  
 Knight, Arthur Thirlby  
 Knott, John Robertson

Lawrie, William Duncan  
 Lloyd, John Daniel Stewart  
 Lloyd-Williams, Tudor  
 Longley, John Augustus Noel  
 Longmore, Tom  
 Lunn, Cyril Reginald

Maberley, Frederick Herbert  
 Machin, Frank Smith  
 Mackey, Leonard George Joseph  
 Marshall, Herbert Frank  
 Mason, Philip James  
 Mathews, William L'Estrange  
 McGavin, Donald Johnston  
 McIlroy, James Archibald  
 Mills, George Percival  
 Moore, Hubert Andrew David  
 Morris, George Edward Victor  
 Morton, Edwin

Newton, Richard Arthur  
 Nicholls, Arthur Ernest  
 Nichols, Ernest James  
 Nock, William Wilson  
 Northwood, Samuel

Oddie, Arthur Brearley  
 O'Dowd, Francis Bridge  
 O'Dowd, John Austin  
 Owen, Percy Norman

Parsons, Leonard Gregory  
 Pearson, Albert Gasthorne  
     Widdowfield  
 Pemberton, Thomas Eben  
 Penrose, Nevill Coghill  
 Perry, George Downing  
 Pickerill, Henry Percy  
 Plant, Henry William  
 Price, Ernest Henry  
 Price, Florence Margaret Sarah  
 Price, Horace John D'Arcy Gerrard  
 Price, Lawrence Edwin  
 Proctor, Alfred Heathcoat

Ravenhill, Thomas Holmes  
 Retallack, William Charles  
 Rigby, Cyril Stephen Stokes  
 Roberts, Walter Rowland Southall  
 Rowland, Frank  
 Rollason, George  
 Rollason, Norman John Lancelot  
 Russell, George Andrew

Sanders, Arthur Addison  
 Sawyer, John Stuart  
 Smith, Arthur John  
 Smith, David Priestley  
 Smith, William Brownlow Ashe  
 Snoad, Francis George

Sparrow, Edward Cyril  
 Sullivan, Patrick Arthur  
 Sydenham, Frederick

Tangye, Claude Edward  
 Thomas, Leonard Kirby  
 Thomason, Henry Philip  
 Thompson, Frederick  
 Tomey, Edmund Vaughan  
 Tregae, William  
 Trotter, Alexander

Wakefield, Walter  
 Walker, Spencer Graham  
 Walsh, Fred Newton  
 Ward, Bernard Joseph  
 Ward, Horace Walshman  
 Warren, Herbert Henry  
 Weaver, Alfred Ernest Remmett  
 West, John Thomas  
 Whaite, Herbert Hoyle  
 Whitcombe, Edmund Stanley  
 Whitcombe, William Philip  
 Wilkes, William Henry Griffin  
 Wilkinson, Edmund  
 Wilkinson, Frederick  
 Williams, Norman Valentine  
 Wilson, Horace Bagster  
 Wynn, William Henry

Young, Francis Brett  
 Youngson, James

## STUDENTS IN THE DAY TRAINING COLLEGE.

Allsop, Clara Ellen  
 Armitage, Dora Kathleen  
 Austin, Annie  
  
 Barker, Emily Wilhelmina

Barnett, Alice Catherine  
 Bell, Arthur  
 Bellingham, Winifred Agnes  
 Belton, Annie Winifred  
 Bland, Kate Agnes



Bloxham, Olive Mary  
 Boby, Eleanor Katherine  
 Booth, Joseph Bate Bridgwater  
 Boots, Edith Mary  
 Bridgwater, Herbert Augustus  
 Brown, Robert Alfred

Carpenter, Bessie  
 Case, Nellie  
 Chamberlin, Helena Mary  
 Chandler, Mande Nellie  
 Clarke, Thomas Edward  
 Cocks, Ada Emma  
 Condry, Mabel Alice  
 Cooke, Edith Ellen  
 Cox, Francis William Maurice  
 Crutchley, Elsie Sherwood  
 Cunliffe, Minnie  
 Cutler, Ethel

Dallison, Eva Juliet  
 Daniel, Gertrude Mary  
 Davies, Mary Elizabeth  
 Davis, Amy  
 Davis, Herbert Valentine  
 Davis, Mabel Mary  
 Dawson, Wilfrid Charles  
 Dewell, Margaret Ann  
 Dodsworth, Ernest Howard  
*Doughty, Walter Drane*  
 Douglas, Ella Winifred  
 Doyle, John Martin

Edge, Elizabeth Sarah  
 Edwards, Joseph Goodman  
 Evans, David

Field, Edith Gertrude  
 Fisher, Alice Laura  
 Fleming, Roderic James  
 Frost, John William

George, Edward Lionel Pascoe  
 George, Lilian Emilie

Gilleland, James  
 Grange, Dalton  
 Griffin, Ruth  
 Griffiths, Evan

Handley, Marion  
 Harbutt, Mabel Alice  
 Hemmings, Clara  
 Hilton, Herbert  
 Hinsley, Nellie Winifred  
 Hodgson, Martin Thompson  
 Hollick, Bertram George Richard  
 Hood, Daisy Mary  
 Hustwaite, Percy

Ingram, Winifred Beatrice

Jackson, Francis Edgar  
 James, Jane  
 James, Mabel Dora  
 Jennings, Helena Mary  
 Johnston, Alice  
 Jones, Florence Annie

King, Jessie Marion

Lambie, Helen Christina  
 Landon, Hilda Mary  
 Lathwood, Gertrude Annie  
 Latter, Florence  
 Leach, Janet  
 Lerrigo, Frances Emily Dora  
 Lindsay, George  
 Lowe, Catherine  
 Lowe, Edith Ellen

Mackintosh, Christina Alice  
 McHarg, John  
 Markwick, Wilfred Leslie  
 Marle, Henry  
 Mason, Lottie Beatrice  
 Matthews, Philip John Thirkettle

May, Florence Ethel  
Minahan, Rosa  
Morrell, Arnold Harry  
Mortimer, Ernest Charles  
Mortimer, Margaret  
Mudway, Florence Elizabeth  
Mumford, Grace Adelaide  
Munro, Alice Mary

Nash, Edith Mary

Palmer, Agnes  
Palmer, Herbert Edward  
Parsons, Richard  
Partridge, Nellie  
Plant, David Wallace  
Pontifex, Edith Beatrice  
Preece, Jessie Urania  
Prior, Annie Kington  
Priestman, Ethel Mercy

Ramage, Isabella Taylor  
Reynolds, Gertrude Nellie  
Roberts, Eleanor Hannah  
Rosborough, Stanley Melville  
Rowlands, Thomas Augustus  
Rudder, Miriam Ada  
Russell, Elizabeth Lilian Edith  
Russell, Samuel Charles

Shaw, Joseph Wright  
Sherburn, Alfred  
Simcox, Alfred William  
Smith, Florence Gertrude

Smith, Jane Ingham  
Southall, Dora Muriel  
Spink, John Sheriff  
Standeven, John Robert  
Stanford, William  
Stanton, Ruth Marian  
Steventon, Charles Arthur  
Sutherns, Bertha Edna  
Swindale, Robert

Tarleton, Amy Clarice  
Tattersall, Gertrude  
Taubman, May Brew  
Taylor, Edith  
Thomas, John Calvin  
Thompson, Eloise Irene  
Tidmarsh, Mabel Alice  
Timmins, George Dickinson  
Toukin, James Howard  
Townsend, Alice  
Toy, Lucy  
Tranter, Marion Eva  
Turner, Edith  
Turton, William

Vyse, Nellie

Walker, Ethel Florence  
Wells, Lily Elizabeth  
Willford, Cecil  
Woolley, Thomas  
Wootton, Eda Annie  
Wragg, Harriet

---

UNIVERSITY EXAMINATIONS.

1902.

---

FACULTY OF SCIENCE.

MASTER OF SCIENCE.

Wood, Ethel Mary Reader.

BACHELOR OF SCIENCE.

(a) *Associates.*

Boulton, William Savage.  
 Chattaway, Frederick Daniel.  
 Ehrhardt, Ernest Francis.  
 Lapworth, Arthur.  
 Priest, Samuel Benjamin.  
 Silvester, Harry.  
 Watts, Francis.

(b) *Under Ordinary Regulations.*

Honours Division.

Ashford, Florence (Geology).  
 Merritt, Onèra Amelia (Zoology) (*Scholarship*).  
 Twiss, Douglas Frank (Chemistry) (*Scholarship*).  
 Friend, John Albert Newton (Chemistry).

Division II.

Boyer, George Edward.  
 Phillips, Walter Charles Stanley.  
 Pooler, Frederick John.  
 Taylor, Joseph Andrew.

Division III.

Wilding, Jane Ellis.

*Passed in Part of the Examination.*

Coltart, William Laurie (Chemistry, *Principal*).  
 Done, Edward (Geology, *Subsidiary*).  
 Thorncroft, Frederick James (Physics, *Subsidiary*).

## INTERMEDIATE EXAMINATION.

## Division I.

Timmins, George Dickinson.

Wynn, William Benjamin.

## Division II.

Ault, Wilfrid Beaumont.

Cox, Arthur Hubert.

*Completed the Examination.*

Bach, May Gertrude.

Frankland, Edward Percy.

Thompson, Charles Joseph.

*Passed in Part of the Examination.*

Barnes, James Hector (Physics, Chemistry and Biology).

Brown, Robert Alfred (Physics and Biology).

Davis, Herbert Valentine (Physics, Biology and Education).

George, Lilian Emilie (Mathematics, Physics and Chemistry).

Landon, Hilda Mary (Mathematics, Physics and Chemistry).

## THIRD EXAMINATION IN ENGINEERING.

*Passed in Part of the Examination.*

Griffin, Frederick Charles (Geology).

## SECOND EXAMINATION IN ENGINEERING.

## Division I.

(None).

## Division II.

Roberts, Samuel Arthur.

*Passed in Part of the Examination.*

Scott, Percy Eliot (Engineering and Applied Mathematics).

## FIRST EXAMINATION IN ENGINEERING.

## Division I.

Baxter, Donald John William.

Tunbridge, Edward William (*Exhibition*).

## Division II.

Harris, Arnold William Elsmere.  
 Horsburgh, Harry.  
 Pipe, Thomas Sylvanus.  
 Poynting, Arthur.

*Passed in Part of the Examination.*

Heathcote, Ernest William (Engineering, Physics and Chemistry).  
 Hillhouse, John Payton (Engineering and Chemistry).  
 Moncur, James (Engineering, Physics and Chemistry).

## DIPLOMA IN BREWING.

## Division I.

(None.)

## Division II.

Cooke, Richard Ernest.  
 Jones, Archdale Mercer.  
 Robottom, Charles Henry.  
 Rudgard, Charles Walter.

## FACULTY OF ARTS.

## MASTER OF ARTS.

Fiedler, Elise Minna (German and French).  
 Hawkes, Margaret Mellard (German).  
 Thomas, Henry (Latin and Greek).

## BACHELOR OF ARTS.

*(a) Associates.*

Brockington, William Allport.  
 Lee, Winifred (*Scholarship*).  
 Wyatt, Alfred John.

*(b) Under Ordinary Regulations.*

## Division I.

(None).

## Division II.

Douglas, Ella Winifred.  
 Jackson, Francis Edgar.

*Passed in part of the Examination.*

Davis, Amy (Psychology).  
 Handley, Marion (Latin).  
 Plant, David Wallace (English and Greek).  
 Smith, Jane Ingham (Mathematics).  
 Wragg, Harriet (Psychology).

## INTERMEDIATE EXAMINATION.

## Division I.

Turner, Edith (*Exhibition*).

## Division II.

Armitage, Dora Kathleen.  
 Cooke, Edith Ellen.  
 Condry, Mabel Alice.  
 Jones, Florence Annie.  
 Priestman, Ethel Mercy.

*Completed the Examination.*

Davis, Amy.  
 Plant, David Wallace.  
 Rosborough, Stanley Melville.  
 Wragg, Harriet.

*Passed in part of the Examination.*

Creswell, Arthur Wilfred (Latin, Mathematics and German).  
 Lightfoot, Mildred (Latin, Mathematics and Logic).  
 Mackintosh, Christina Alice (Latin, English and French).  
 Mason, Lottie Beatrice (Latin, English, Logic and French).  
 Moon, Melita Mary Annie (Latin, English, Logic and French).  
 Payton, Margaret Evelyn (Latin, English, French and Greek).  
 Roberts, Eleanor Hannah (Latin, English, Education and French).

## DIPLOMA IN EDUCATION.

*Higher Diploma.*

Douglas, Ella Winifred.

*General Diploma.*

Wynn, William Benjamin.



## FACULTY OF MEDICINE.

## DOCTOR OF MEDICINE.

Browne, Henry William Langley.  
Owen, David Charles Lloyd.  
Motteram, Henry Prince.  
Orton, John Orton.  
Wilkes, George Arthur.

## MASTER OF DENTAL SURGERY.

Round, Harold.

## BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

*(a) Associates.*

Bennett, William Edward.  
Cant, William John.  
Emanuel, Joseph George.

*(b) Past Students of the Birmingham Medical School.*

Atkins, John Francis.  
Chapman, Walter.  
Clendinnen, William McEntire.  
Longley, John Augustus Noel.  
Lunn, Cyril Reginald.  
Lyster, Robert Arthur.  
Polson, James Ronald.  
Utting, Horace Ebbage.

## B.Sc. IN PUBLIC HEALTH.

*Associate.*

Barwise, Sidney.

## DIPLOMA OF PUBLIC HEALTH.

January, 1902.

Parts I. and II.

Dyson, Thomas Edwards.

June, 1902.

Part I. (only).

Beards, Ernest Jonathan.

## FOURTH EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Gettings, Cuthbert Keay.

Hird, Robert Beatson Dennis (*Scholarship*).

## THIRD EXAMINATION FOR THE DEGREES OF M.B., CH.B.

## Class I.

Cook, William.

Gettings, Cuthbert Keay

Weaver, Alfred Ernest Remmett.

## Class II.

Avis, William George.

Davies, Fred Thomas Hollway.

Hird, Robert Beatson Dennis.

Mackey, Leonard George Joseph.

Walsh, Fred Newton.

Warren, Herbert Henry.

Wilkinson, Edmund.

## SECOND EXAMINATION FOR THE DEGREES OF M.B., CH.B.

April, 1902.

## Class II.

Davies, Fred Thomas Hollway.

Walsh, Fred Newton.

Warren, Herbert Henry.

June, 1902.

## Class I.

Dawson, Joseph Bernard (*Scholarship*).

Glissan, Francis Reginald D'Alton.

Rollason, Norman John Lancelot.

## Class II.

Aitken, Robert Wallace.

Astbury, Reginald Hudson.

Bunting, Edward Lancelot.

Greener, Helen Gertrude.

Horton, William Claude.

Houghton, William Cuthbert.

Pickerill, Henry Percy.

Ravenhill, Thomas Holmes.

Tangye, Claude Edward.

## FIRST EXAMINATION FOR THE DEGREES OF M.B., CH.B.

April, 1902.

## Class I.

Bracey, Herbert Charles Horace.

## Class II.

Austin, John Staines.

Crowe, Henry Neville.

Hayes, Lionel Chattock.

Hunt, Richard Stuart Wathen.

Jotham, George Frederick.

Roberts, Walter Rowland Southall.

Walker, Spencer Graham.

Whitcombe, Edmund Stanley.

June, 1902.

## Class I.

Clarke, Mary (*Scholarship*).

## Class II.

Hincks, Arthur Cecil.

Johnson, Claude.

Sanders, Arthur Addison.

Smith, Arthur John.

Young, Francis Brett.

## MATRICULATION EXAMINATION.

September, 1901.

## Class I.

Grange, Dalton, University of Birmingham (Day Training College).

Moncur, James, King Edward's High School, Birmingham.

Priestman, Ethel Mercy, University of Birmingham (Day Training College).

Timmins, George Dickinson, University of Birmingham (Day Training College).

Wood, Denys Richard, Private Tuition.

## Class II.

Barnes, James Hector, Private Study.

Mason, Philip James, Private Tuition.

Sherburn, Alfred, Alexander Street Board School, Goole.

*Candidates who completed Examination.*

Payton, Margaret Evelyn, High School for Girls, Edgbaston.

*Candidates who passed the Examination in four subjects.*

Dowson, Richmond, Grammar School, Darlington.

Hayward, Bushnell, Private Study.

June, 1902.

Class I.

Barnett, Alice Katherine, University of Birmingham (Day Training College).

Bellows, John Earnshaw, University of Birmingham.

Boby, Eleanor Katherine, University of Birmingham (Day Training College).

Boots, Edith Mary, University of Birmingham (Day Training College).

Charlwood, Edward Clive Heathcote, King Edward's School, New Street.

Cheatle, Roland Henry Martyn, Eastbourne College.

Davies, Ellen Elizabeth, Birmingham Pupil Teachers' Central Classes.

Deeley, Criss Parsonage, Birmingham Pupil Teachers' Central Classes.

Douglas, Helena, Aston Pupil Teachers' Central Classes.

Emery, Eleanor Park, Birmingham Pupil Teachers' Central Classes.

Fisher, Alice Laura, University of Birmingham (Day Training College).

\*Fisher, William Ernest, King Edward's School, Aston.

Frost, John William, University of Birmingham (Day Training College).

Goldsack, Irene Rosetta, Birmingham Pupil Teachers' Central Classes.

Hemmings, Clara, University of Birmingham (Day Training College).

Herbert, Gerald Oscar, Rugby School and Private Tuition.

\*Hill, Edith Millicent, King Edward's School, Aston, and Birmingham Pupil Teachers' Central Classes.

Hodder, Beatrice, King Edward's School, Summer Hill, and Birmingham Pupil Teachers' Central Classes.

Hood, Daisy Mary, University of Birmingham (Day Training College).

Jennings, Helena Mary, University of Birmingham (Day Training College).

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\* Entrance Exhibition not exceeding in value the sum of £25 each.

- McNaughton, Sarah Margaret, British Orphanage, Slough, and Birmingham Pupil Teachers' Central Classes.
- Palmer, Herbert Edward, University of Birmingham (Day Training College).
- Ross, Harry Leith, University of Birmingham.
- Russell, Elizabeth Lilian Edith, University of Birmingham (Day Training College).
- Saunders, Agnes Eliza, King Edward's School, Bath Row, and Birmingham Pupil Teachers' Central Classes.
- Scott, Gilbert Shaw, University of Birmingham.
- Silvester, Clara Emily, Aston Pupil Teachers' Central Classes.
- Smith, Florence Gertrude, University of Birmingham (Day Training College).
- Smith, Ethel Mabel, King Edward's School, Summer Hill, and Birmingham Pupil Teachers' Central Classes.
- Taylor, Venetta Lilian, Birmingham Pupil Teachers' Central Classes and Private Study.
- Thomas, Elsie Lilian Poyser, King Edward's School, Summer Hill, and Birmingham Pupil Teachers' Central Classes.
- Tidmarsh, Elsie Isabel, King Edward's School, Summer Hill, and Birmingham Pupil Teachers' Central Classes.
- Timmins, Leonard Graham, Private Study.
- Wills, Mabel Annie, King Edward's School, Aston, and Birmingham Pupil Teachers' Central Classes.
- Wright, Robert, University of Birmingham.

## Class II.

- Austin, Annie, University of Birmingham (Day Training College).
- Bell, Arthur, University of Birmingham (Day Training College).
- Belton, Frances Nora, Aston Pupil Teachers' Central Classes.
- Belton, Nelly Gwendolyn, King Edward's School, Aston.
- Campion, Ethel Elizabeth, Birmingham Pupil Teachers' Central Classes.
- Cutting, Ethel Sophia, Aston Pupil Teachers' Central Classes.
- Dewell, Margaret Ann, University of Birmingham (Day Training College).
- Harper, Joseph Griffiths, Aston Technical School and Private Study.
- Phillips, Amy Lilian, Birmingham Pupil Teachers' Central Classes.
- Shaw, Joseph Wright, University of Birmingham (Day Training College).
- Silk, Ethel Mary, Birmingham Pupil Teachers' Central Classes.

Taylor, Dora Kitty, King Edward's School, Bath Row, and Birmingham Pupil Teachers' Central Classes.

Wheeler, Mabel, King Edward's School, Camp Hill, and Birmingham Pupil Teachers' Central Classes.

Willford, Cecil, University of Birmingham (Day Training College).

Wilson, Grace, King Edward's School, Camp Hill, and Birmingham Pupil Teachers' Central Classes.

*Candidates who completed the Examination.*

Irvine, Louise Jane, King Edward's School, Camp Hill, and Birmingham Pupil Teachers' Central Classes.

McIntyre, Jessie Wilhelmina, Private Tuition and Birmingham Pupil Teachers' Central Classes.

---

*Candidates who passed the Examination in four subjects.*

Baker, Walter Farmer, King Edward's School, New Street.

Dodsworth, Ernest Howard, University of Birmingham (Day Training College).

Dowler, Harry Frederick, University of Birmingham.

Doyle, John Martin, University of Birmingham (Day Training College).

Eastman, Frank Henry, Private Tuition and Midland Institute.

Everitt, William Arthur, Private Tuition.

Jope, Ethel Mary, Wolverhampton Pupil Teachers' Central Classes.

Latter, Florence, University of Birmingham (Day Training College).

McHarg, John, University of Birmingham (Day Training College).

Mortimer, Ernest Charles, University of Birmingham (Day Training College).

Parry, Ethel, Aston Pupil Teachers' Central Classes.

Priestman, Lilian Ada, King Edward's School, Aston, and Birmingham Pupil Teachers' Central Classes.

Simcox, Alfred William, University of Birmingham (Day Training College).

Smith, Mabel, King Edward's School, Camp Hill, and Birmingham Pupil Teachers' Central Classes.

Spink, John Sheriff, University of Birmingham (Day Training College).

Thompson, Eloise Irene.

Tonkin, James Howard, University of Birmingham (Day Training College).

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## FORM OF BEQUEST TO THE UNIVERSITY.

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I BEQUEATH the sum of £ , free of legacy duty, to the University of Birmingham. And I direct that the said legacy and the legacy duty thereon shall be paid exclusively out of such part of my personal estate as may by law be bequeathed for charitable purposes, and preferably to any other payment thereout. And I direct that the same legacy shall be paid to the Treasurer for the time being of the said University, whose receipt shall be an effectual discharge for the same, and that the same shall be applied\* [in the discretion of the Council of the said University to the general purposes thereof, or to such special purposes as the said Council shall determine.]

\* NOTE.—If any special directions or conditions are to be attached to the legacy, the part in brackets to be omitted and the special matter inserted.



## APPENDIX.

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The Walter Myers Travelling Studentship.

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## D E E D

ESTABLISHING "THE WALTER MYERS TRAVELLING  
STUDENTSHIP FUND."

**This Indenture** made the 10th day of December 1901 between THE UNIVERSITY OF BIRMINGHAM (incorporated by Royal Charter on the 24th day of March 1900 and acting with the powers conferred upon them by the Birmingham University Act 1900 and hereinafter called "The University") of the first or one part and GEORGE MYERS of Thornfield Edgbaston in the City of Birmingham of the second or other part.

**Whereas** the said George Myers in order to promote original research by a Graduate of the Birmingham University and in memory of his only son Walter Myers M.A., M.B., B.C. (of the University of Cambridge and B.Sc. of the University of London and a former student of the Mason University College of Birmingham) who contracted yellow fever at Brazil while investigating the causes of such disease on behalf of the Liverpool School of Tropical Medicine hath proposed to give to the University of Birmingham the sum of £3,000 to be held by the University for the purposes hereinafter set forth.

**Now therefore this Indenture witnesseth** that in consideration of the sum of £3,000 paid to the Treasurer of the University on the day of the date hereof (the receipt of which sum the University do hereby acknowledge). The Birmingham University for themselves and their successors do hereby covenant with the said George Myers that the Birmingham University and their successors shall stand possessed of the said sum of £3,000 and the securities on which the same shall be from time to time invested and the accruing income of such investments upon the trusts and for the purposes hereinafter expressed and declared that is to say :—

1.—The University shall invest the said sum in any securities on which Trustees may for the time being be authorised by law to invest trust moneys.

2.—The said sum and the investments thereof shall be called and distinguished from the other moneys and investments of the University by the name of "The Walter Myers Studentship Fund" and the University shall at all times hereafter keep an account of this fund and the investments and income thereof separate and apart from the general or any other funds or accounts of the University.

3.—The University shall apply the income of the said investments in payment to the holder for the time being of a Studentship to be called "The Walter Myers Travelling Studentship" of the sum of £150 payable in advance by quarterly instalments such holder to be nominated and appointed each alternate year for one year only. Provided nevertheless that in the case of a student of exceptional merit and ability the University may allow such student to hold the scholarship for a second year but the sum payable to such student for the second year shall not exceed £90.

4.—In case in any year in which the Studentship is offered no candidate shall present himself or herself or in case no one of the candidates shall in the opinion of the hereafter mentioned Committee be of sufficient merit to be nominated the income of the Studentship shall be retained by the University and the Studentship offered again in the succeeding year and so on *toties quoties* until a candidate shall be nominated and appointed in manner hereinafter provided. In every case of suspension of the Studentship the income shall be invested and accumulated and if in any year the suspended income and its accumulation shall be sufficient then another Studentship may be awarded annually so long as the income will allow.

5.—The University shall on or before the 10th day of July in each year in which the Studentship is offered advertise the conditions in two Medical Journals

published in London and two newspapers published in Birmingham and shall also print a copy of these presents in the University Calendar in each year.

6.—The Studentship shall be awarded irrespective of sex sect or party but in the case of two applicants of equal merit a native of Birmingham shall have the preference.

7.—The merits of the candidate for the Studentship shall not be ascertained by the results of any form of competitive examination but by a Committee consisting of the following persons namely: The Dean of the Medical Faculty of the University and the Professors of Pathology and Chemistry in the University and the External Examiner in Pathology appointed by the University. The External Examiner shall be Chairman of the said Committee with an original and a casting vote and the Studentship shall not be awarded at any meeting unless the External Examiner is present. Subject as aforesaid the Committee shall ascertain the fitness of the candidate in such manner as they think proper and report to the Council as soon as possible after the first day of October in the year in which the Studentship is offered and the election shall then be made by the Council of the University.

8.—The Studentship shall be tenable at the University of Berlin Frankfort or Freiburg in Baden or at some University or Hospital not in Great Britain or Ireland appointed from time to time by the Council of the University on the recommendation of the Senate.

#### QUALIFICATION OF CANDIDATES.

9.—Every Candidate for the Studentship must be (1) Under the age of thirty years at the date of his or her application and (2) a graduate of the Birmingham University and (3) must have attained the degree of M.B. in such University and the degree of B.Sc. in the University of Birmingham or of London Cambridge or Oxford.

#### CONDITIONS OF TENURE.

10.—The conditions of holding the studentship shall be as follows :—

- (a) The holder shall engage in the study of Pathology in Berlin Frankfort or Freiburg or such other place of study not in Great Britain or Ireland as shall be appointed as provided by Clause 8.
- (b) In clinical work combined with pathological research at such Hospitals as the Council of the University on the recommendation of the Senate shall appoint either at Berlin Frankfort or Freiburg or at any other University or Hospital not in Great Britain or Ireland which may from time to time be approved of as aforesaid.
- (c) The student during the tenure of his or her studentship shall not systematically follow any business or profession or engage in any other work which in the opinion of the Council would interfere with his or her researches.

II.—In case the student shall publish in any way the results of his or her investigations during the studentship he or she shall where practicable describe himself or herself as the "Walter Myers Student" of the University of Birmingham.

**In witness** whereof the University hath hereunto set its seal and the said George Myers his hand and seal the day and year first aforesaid.

The Seal of the University of Birmingham was hereto affixed by the undersigned duly authorised by a resolution of the Council to affix such seal.

Seal of  
University.

F. C. CLAYTON.

R. S. HEATH.

GEO. H. MORLEY,  
*Secretary.*

Signed sealed and delivered by the said George Myers in the presence of

GEORGE MYERS (L.S.)

G. J. JOHNSON,  
Solicitor, Birmingham.



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